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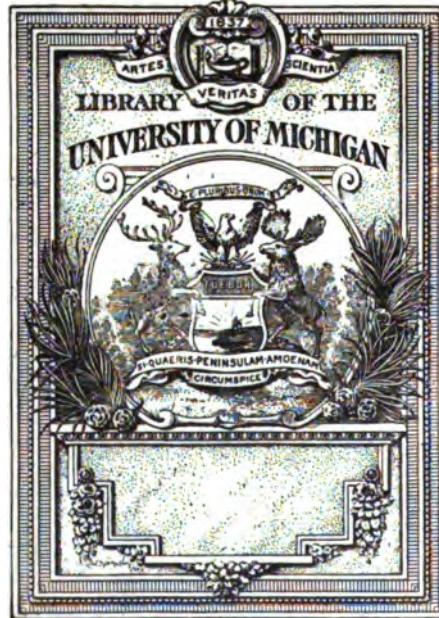
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Cornell

THE REGISTER

Cornell University

1904-1905

ITHACA, NEW YORK
PUBLISHED BY THE UNIVERSITY
JANUARY, 1905

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ITHACA, N. Y.

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1904

OCTOBER						NOVEMBER						DECEMBER					
S	M	T	W	T	F	S	M	T	W	T	F	S	M	T	W	T	F
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9	10	11	12	13	14	15	13	14	15	16	17	18	19	11	12	13	14
16	17	18	19	20	21	22	20	21	22	23	24	25	26	18	19	20	21
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1905

JANUARY						MAY						SEPTEMBER					
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8	9	10	11	12	13	14	14	15	16	17	18	19	20	10	11	12	13
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FEBRUARY

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12	13	14	15	16	17	18	11	12	13	14	15	16	17	15	16	17	18
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MARCH

JULY						NOVEMBER											
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APRIL

AUGUST						DECEMBER											
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1906

JANUARY						FEBRUARY						MARCH					
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21	22	23	24	25	26	27	18	19	20	21	22	23	24	18	19	20	21
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30	--	--	--	--	--	--	--	--	--	--	--	--	31	--	--	--	--

CALENDAR.

FIRST TERM—1904-1905.

- Sept. 20 Tuesday Entrance examinations begin.
- Sept. 27 Tuesday { ACADEMIC YEAR BEGINS. Matriculation of New students. University Scholarship examinations begin.
- Sept. 28 Wednesday MATRICULATION of new students.
- Sept. 28th Wednesday { REGISTRATION of students in the Medical College in New York City.
- Sept. 29 Thursday REGISTRATION of matriculated students.
- Sept. 30 Friday { INSTRUCTION begins in all departments of the University at Ithaca. President's annual address to the students at 12:00 M.
- Nov. 24 Thursday THANKSGIVING DAY.
- Dec. 1 Thursday { Latest date for announcing subjects of Theses for Advanced Degrees.
- Dec. 23 Friday Christmas recess begins.
- Jan. 4 Wednesday Work resumed.
- Jan. 5 Thursday { Registration in the College of Agriculture for Winter Course in Agriculture and Dairy Husbandry.
- Jan. 7 Saturday Ninety-four Memorial Prize Competition.
- Jan. 11 Wednesday FOUNDER'S DAY.
- Feb. 3 Friday First term closes.

THE CALENDAR.

SECOND TERM—1904-1905.

Feb. 6 Monday	REGISTRATION for second term.
Feb. 22 Wednesday	WASHINGTON'S BIRTHDAY.
Mar. 16 Thursday	{ Winter Course in Agriculture and Dairy Husbandry ends.
Mar. 25 Saturday	Easter recess begins.
Apr. 1 Saturday	{ Latest date for presenting Woodford Orations.
Apr. 4 Tuesday	Work resumed.
Apr. 15 Saturday	{ Latest date for receiving applications for Fellowships and Graduate Scholarships.
May 1 Monday	{ Latest date for presenting Theses for Advanced Degrees.
May 5 Friday	Woodford Prize Competition.
May 26 Friday	Eighty-six Memorial Prize Competition.
May 30 Tuesday	DECORATION DAY.
June 14 Wednesday	{ COMMENCEMENT of Medical College in New York City.
June 15 Thursday	Instruction ends.
June 18 Sunday	Baccalaureate sermon.
June 20 Tuesday	Class Day.
June 21 Wednesday	{ Alumni Day and Annual Meeting of the Trustees.
June 22 Thursday	THIRTY-SEVENTH ANNUAL COMMENCEMENT.

SUMMER SESSION—1905.

July 5 Wednesday	Summer Session begins.
Aug. 16 Wednesday	Summer Session ends.

THE CALENDAR.

3

FIRST TERM—1905-1906.

- Sept. 19 Tuesday Entrance examinations begin.
- Sept. 26 Tuesday } ACADEMIC YEAR BEGINS. Matriculation of
 } New students. University Scholarship ex-
 } aminations begin.
- Sept. 27 Wednesday { REGISTRATION of students in the Medical
 } College in New York City.
- Sept. 27 Wednesday MATRICULATION of new students.
- Sept. 28 Thursday REGISTRATION of matriculated students.
- Sept. 29 Friday { INSTRUCTION begins in all departments of the
 } University at Ithaca. President's annual
 } address to the students at 12:00 M.
- Nov. — Thursday THANKSGIVING DAY.
- Dec. 1 Friday { Latest date for announcing subjects of Theses
 } for Advanced Degrees.
- Dec. 22 Friday Christmas recess begins.
- Jan. 3 Wednesday Work resumed.
- Jan. 4 Thursday { Registration in the College of Agriculture for
 } Winter Course in Agriculture and Dairy
 } Husbandry.
- Jan. — — — . Ninety-four Memorial Prize Competition.
- Jan. 11 Thursday FOUNDER'S DAY.
- Feb. 2 Friday First term closes.

FOUNDATION AND ENDOWMENT.

Cornell University was incorporated by the legislature of the State of New York on the 27th of April, 1865, and opened on the 7th of October, 1868. The existence of the University is due to the combined wisdom and bounty of the United States, the State of New York and Ezra Cornell.

By an act of Congress, approved July 2, 1862, it was provided that there should be granted to the several states public lands, "thirty thousand acres for each senator and representative of congress," from the sale of which there should be established a perpetual fund "the interest of which shall be inviolably appropriated, by each state which may take and claim the benefit of this act, to the endowment, support and maintenance of at least one college, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectfully prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." The act forbade the use of any portion of the aforesaid fund, or of the interest thereon, for the purchase, erection or maintenance of any building or buildings; but the several states claiming and taking the benefit of the provisions of the act were required, by legislative assent previously given, "to provide, within five years at least, not less than one college" for carrying out the purposes of the act.

The share of the State of New York was nine hundred and ninety thousand acres. The scrip was delivered to the comptroller, who was authorized, by the act passed May 5, 1863, to receive it and with the approval and concurrence of other state officers to dispose of the whole or any portion of it for cash, or for stocks of the United States or of the states, or some other safe stocks yielding not less than five per cent. Under this act eight thousand acres were sold at eighty-three cents and sixty-eight thousand acres at eight-five cents, producing together sixty-four thousand four hundred and forty dollars. But as other states were offering their scrip at a much lower rate, sales soon ceased. Furthermore there was the greatest uncertainty in regard to the disposition which the legislature might ultimately make of the fund that was expected to accrue from the sale of the land scrip.

Meantime Ezra Cornell was dreaming of a project which he had

come to formulate in the memorable words : "I would found an institution where any person can find instruction in any study." By a union of his own resources with the proceeds of the land grant he saw a way to the realization of his purpose. This union was effected by the act of April 27, 1865, establishing Cornell University, and appropriating to it the proceeds of the sale of the public lands granted by congress to the State of New York ; and the founder's broad conception of a university was reconciled with the narrower purpose of the act of congress donating public lands to the states establishing colleges for the benefit of agriculture and the mechanic arts, by providing in the charter that "such other branches of science and knowledge may be embraced in the plan of instruction and investigation pertaining to the university, as the trustees may deem useful and proper." In the same liberal spirit it was provided in regard to the board of trustees, that "at no time shall a majority of the board be of one religious sect or of no religious sect"; in regard to professors and other officers, that "persons of every religious denomination, or of no religious denomination shall be equally eligible to all offices and appointments"; and in regard to students, that the university should admit them "at the lowest rate of expense consistent with its welfare and efficiency," and more particularly that it should "annually receive students, one from each assembly district of the state free of any tuition fee . . . in consideration of their superior ability, and as a reward for superior scholarship in the academies and public schools of this state."

Ezra Cornell's direct donation to the university was five hundred thousand dollars, two hundred acres of land with useful buildings, and several smaller gifts for special purposes. His largest contribution, however, came in the shape of profits eventually made by the university on the land scrip which he purchased from the state. Of the New York scrip no further sales had been made by the comptroller prior to the autumn of 1865, when Ezra Cornell purchased one hundred thousand acres for fifty thousand dollars upon condition that all the profits which should accrue from the sale of land should be paid to Cornell University. By act of the legislature passed April 10, 1866, the state had authorized the comptroller to sell the scrip remaining unsold, that is to say, scrip for eight hundred and thirteen thousand nine hundred and twenty acres, to the trustees of Cornell University at a price of not less than thirty cents per acre; and in case the trustees should not agree to make the purchase, the legislature had further authorized the sale "to any person or persons," on the terms above named, provided that proper security should be given that "the whole

net avails and profits from the sale of script " should be paid over and devoted to the purpose of Cornell University. The Trustees were not in condition to make the purchase. After some delay Mr. Cornell agreed to take the scrip at thirty cents an acre, with an addition of thirty cents if he should realize that sum on the sale of the land, making the following stipulation in a letter to the comptroller regarding any profits that might accrue in excess of the purchase money.

"I shall most cheerfully accept your views so far as to consent to place the entire profits to be derived from the sale of the lands to be located with the college land scrip in the treasury of the state, if the state will receive the money as a separate fund from that which may be derived from the sale of the scrip, and will keep it permanently invested, and appropriate the proceeds from the income thereof annually to the Cornell University, subject to the direction of the trustees thereof for the general purposes of said institution, and not to hold it subject to the restrictions which the act of congress places upon the funds derived from the sale of college land scrip, or as a donation from the government of the United States, but as a donation from Ezra Cornell to the Cornell University."

The terms proposed by Mr. Cornell were accepted, and the agreement with the state was made August 4, 1866. The sixth paragraph of the agreement distinguishes clearly between the "College Land Scrip Fund"—being the receipts from the state's sale of the land scrip—and the "Cornell Endowment Fund," which was to be constituted by the profits made by Mr. Cornell in the management of the lands and by his other gifts to the University. Mr. Cornell sold scrip for three hundred and eighty-one thousand nine hundred and twenty acres, at prices varying from eighty-five cents to one dollar per acre, the total receipts being three hundred and fifty-seven thousand seven hundred and forty-eight dollars and sixty one cents. With the remaining scrip for five hundred and thirty-two thousand acres he located five hundred and twelve thousand three hundred and forty-three and sixty-five hundredths acres; and of the land thus located he sold one hundred and eleven thousand and forty-six and eighty-six hundredths acres for four hundred and seventy thousand three hundred and sixty-four dollars and eighty-eight cents. The residue of the land he carried until October, 1874, when a new agreement was made, with the consent of the proper state officers, in virtue of which "the Cornell University" was to take the place and assume the duties and obligations of Ezra Cornell, in his contracts with the state, of November, 1865, and August 1866, accepting from him a conveyance of his entire interest, and all his rights under such contracts, and of all the

lands located by him with college scrip, and paying at once in cash to the comptroller the full amount of Cornell's bond to the state principal and interest, and henceforward assuming the burden of the care, management, and sale of such lands." The university thus took the place of Ezra Cornell in his contracts with the state; but subsequently the legislature by an act passed May 18, 1880, directed the comptroller, upon the request of Cornell University, to assign, transfer, pay, and deliver to the latter "all money, security, stocks, bonds and contracts, constituting a part of or relating to the fund known as the Cornell Endowment Fund, now held by the state for the use of said university," and a short time thereafter such transfer was made. From the lands handed over by Mr. Cornell—four hundred and one thousand two hundred and ninety-six and seventy-nine-hundredths acres—the Board of Trustees, through the agency of their Land Committee (of which Henry W. Sage was long chairman), have already realized a net return of about four million eight hundred dollars. The absolute ownership by the university of the Cornell Endowment Fund was, on May 19, 1890, established by the decision of the Supreme Court of the United States, affirming a decision of the New York Court of Appeals.

The College Land Scrip Fund amounts to six hundred and eighty-eight thousand five hundred and seventy-six dollars and twelve cents. By chapter 78 of the laws of 1895 it was turned into the treasury of the state and a certificate of indebtedness for an interest thereupon of five per cent. annually was issued to Cornell University by the State, conformably to the conditions of the act of congress of July 2, 1862, under which the donation of public land was made.

The original charter of Cornell University set limits to the amount of property it could hold; but by an act passed May 12, 1882, the clause in the charter restricting the holdings of the university was amended so as to remove every limitation, the precise language of the amendment being as follows:

"The corporation hereby created ['Cornell University'] may take and hold real and personal property to such an amount as may be or become necessary for the proper conduct and support of the several departments of education heretofore established or hereafter to be established by its board of trustees, and such property, real and personal, as has been or may hereafter be given to said corporation by gift, grant, devise, or bequest in trust or otherwise, for the uses and purposes permitted by its charter, and in cases of trusts so created the several trust estates shall be kept distinct, and the interest or income shall be faithfully applied to the purposes of such trust in accordance with the provisions of the act or instrument by which the respective trusts were created."

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The PRESIDENT of the University,		Ithaca
His Excellency, the GOVERNOR of New York,	---	Albany
His Honor, the LIEUTENANT-GOVERNOR,	---	Albany
The SPEAKER of the Assembly,	---	Albany
The SUPERINTENDENT of Public Instruction,	---	Albany
The COMMISSIONER of Agriculture,	---	Albany
The PRESIDENT of the State Agricultural Soc.,	---	Brooklyn
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* _____,	(B.) --	_____
*WILLARD BEAHAN, B.C.E.,	(A.) --	Winona, Minn.
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_____ ,	(B.) --	_____
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_____ ,	(B.) ¹ --	_____
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EMMONS L. WILLIAMS,	Secretary-Treasurer.	
CHARLES D. BOSTWICK,	Assistant Sec.-Treas.	

*Term of office (5 years) expires in 1905, the next group of six in 1906, etc., etc.
 (1) B., elected by Board. (2) A., elected by Alumni.

BOARD OF TRUSTEES.

9

EXECUTIVE COMMITTEE OF THE BOARD OF TRUSTEES.

SAMUEL D. HALLIDAY,	<i>Chairman.</i>
The PRESIDENT of the University,	HENRY B. LORD,
The LIBRARIAN of the Cornell University,	CHARLES E. TREMAN,
CHARLES H. BLOOD,	ROBERT H. TREMAN,
CHARLES EZRA CORNELL,	MYNDERSE VAN CLEEF,
FRANKLIN C. CORNELL,	ANDREW D. WHITE,
SAMUEL D. HALLIDAY,	GEORGE R. WILLIAMS,
ROGER B. WILLIAMS.	
EMMONS L. WILLIAMS,	<i>Secretary.</i>
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R. H. TREMAN, the PRESIDENT, the TRESURER, R. B. WILLIAMS.

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G. R. WILLIAMS, H. B. LORD, S. D. HALLIDAY, the PRESIDENT.

Committee on Appropriations :

The PRESIDENT, H. B. LORD, G. B. TURNER.

Auditing Committee :

H. B. LORD, M. VAN CLEEF, R. B. WILLIAMS.

DEPARTMENTS AND FACULTIES.

1. THE UNIVERSITY.—Cornell University comprehends the following departments, to-wit: the Graduate Department, the College of Arts and Sciences, the College of Law, the Medical College, the New York State Veterinary College, the College of Agriculture, the College of Architecture, the College of Civil Engineering, the Sibley College of Mechanical Engineering and Mechanic Arts. The New York State Veterinary College is administered by Cornell University, and its work is organically connected with that of the University.

2. THE FACULTIES.—The Faculties of Cornell University are : (a) a General Faculty, designated the University Faculty ; and (b) Special Faculties as follows: the Faculty of Arts and Sciences, the Faculty of Law, the Faculty of Civil Engineering, the Faculty of Mechanical Engineering, the Faculty of Architecture, the Faculty of Agriculture, the Faculty of Veterinary Medicine, and the Medical Faculty.

3. THE UNIVERSITY FACULTY.—The University Faculty consists of the President, who is *ex-officio* the presiding officer, and the Professors and Assistant Professors of the University, including the Professors and Assistant Professors of the New York State Veterinary College. It is the function of the University Faculty to consider questions which concern more than one Special Faculty, questions of University policy, and questions relating to the administration of the discipline of the University. The Graduate Department is under the immediate charge of the University Faculty.

4. THE SPECIAL FACULTIES.—Each Special Faculty is composed of the President, who is *ex-officio* the presiding officer, and all Professors, Assistant Professors, and Instructors who teach in the department or departments under the charge of that Faculty ; but Instructors shall not have the right to vote. Subject to the right of revision by the University Faculty on all matters affecting general University policy, it is the duty of each Special Faculty to determine the entrance requirements for its own students ; to prescribe and define courses of study for them ; to determine the requirements for such degrees as are offered to students under its jurisdiction ; to enact and enforce rules for the education of its students ; and to recommend to the Trustees such candidates for degrees as may have completed the requirements.

OFFICERS OF INSTRUCTION AND ADMINISTRATION.

THE UNIVERSITY FACULTY.

[Arranged in groups in the order of seniority of appointment.]

- JACOB GOULD SCHURMAN, A.M., D.Sc., LL.D., PRESIDENT,
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- THOMAS FREDERICK CRANE, A.M., Litt.D., Dean of the University Faculty, and Professor of the Romance Languages and Literatures,
9 Central Avenue
- GOLDWIN SMITH, D.C.L., LL.D., Professor of English History, Emeritus,
Toronto, Canada
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- GEORGE CHAPMAN CALDWELL, B.S., Ph.D., Professor of Chemistry, Emeritus, and Lecturer on Chemistry,
11 Central Avenue
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108 North Geneva Street
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Cascadilla Cottage
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113 Stewart Avenue
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The Oaks
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Examinations in all the subjects required for admission to the University are held, *at Ithaca* in September, at the beginning of the first term on the dates given below. For examinations in June see below and page 51.

Students who have tried entrance examinations and failed to pass are not entitled to the privilege of admission on school certificates or Regents' credentials.

The certificates issued as the result of the examinations to be held in June by the College Entrance Examination Board of the Middle States and Maryland at Ithaca and various other places will be accepted under the same conditions as if such examinations were held by this University. For further particulars see page 51 and address Secretary of College Entrance Examination Board, Post Office, Sub-station No. 84, New York City.

Permits to take the September examinations must be secured from the Registrar. The permits should be obtained at least twenty-four hours before the date of the examination to be taken. They will be sent by mail upon application.

Permits to take the examinations held June 19-24, 1905 and the times and places at which they are held must be secured from the Secretary of the College Entrance Examination Board, Post Office, Sub-station No. 84, New York City. See also pages 34 and 51.

Students deficient in any of the subjects required for admission, who may be admitted to the University by the Faculty concerned, in spite of such deficiencies, *must make up all deficiencies within one year*.

and they will not in that case be permitted to remove them by attending University instruction in those subjects but are required to take the necessary instruction outside the University. For exception in case of students entering the College of Arts and Sciences, see page 82.

No examination of candidates for admission will be held at any other times or places. The dates and hours for each September entrance examination may be secured from the Registrar. Specimen copies of September examination papers will be sent on application to the Registrar.

The following table shows the equivalent subject as given under the College Entrance Examination Board.

Cornell University Subject.	Equivalent College Board Subject.
1. English.	English a, b.
2. Ancient History (to 814 A.D.)	Ancient History.
3. Modern History (from 814 A.D.)	Medieval and Modern Hist.
4. American History (inc. Civil Government).	American Hist. and Civil Gov.
5. English History.	English History.
6. Plane Geometry.	Plane Geometry.
7. Elementary Algebra.	Elementary Algebra.
8. Solid Geometry.	Solid Geometry.
9. Advanced Algebra.	Advanced Algebra.
10a. Plane Trigonometry.	Plane Trigonometry.
10b. Spherical Trigonometry.	Spherical Trigonometry.
11a. Elementary German.	Elementary German.
11a and b. Advanced German.	Intermediate German.
12a. Elementary French.	Elementary French.
12a and b. Advanced French.	Intermediate French.
13a. Elementary Spanish.	Spanish.
13a and b. Advanced Spanish.	_____
14. Latin Grammar.	Latin Grammar.
14a. Caesar.	Caesar.
14b. Latin Composition.	Latin Composition.
14c. Cicero.	Cicero.
14d. Virgil.	Virgil.
15. Greek Grammar.	Greek Grammar.
15a. Greek Composition.	Greek Composition.
15b. Xenophon.	Xenophon.
15c. Homer.	Homer.
16. Physics.	Physics,
17. Chemistry.	Chemistry.
18. Botany.	Botany.
19. Geology.	_____
20. Zoology.	_____
21. Drawing.	_____

Candidates for admission to the University, instead of passing the entire examination at one time, may present themselves in different years under the following condition :

For the purposes of the division, between two years the examinations in June given by the College Entrance Examination Board and those in September given by the University in the same year may count as one series, the applicant at his option, taking a part in June and a part in September.

ADMISSION ON EXAMINATION.

(For the specific entrance subjects required for admission see under college concerned.)

I. In English. One hour of examination is assigned to answering questions upon the books marked *A*. Two more hours are occupied with writing longer papers upon subjects taken from the books marked *B*.

The books prescribed for 1905 and 1906 are : *A* : Shakespeare, The Merchant of Venice, Julius Caesar ; The Sir Roger de Coverly Papers in the Spectator ; Goldsmith, the Vicar of Wakefield ; Scott, Ivanhoe ; Coleridge, the Ancient Mariner ; Carlyle, Essay on Burns ; Tennyson, The Princess ; Lowell, The Vision of Sir Launfal ; George Eliot, Silas Marner. *B* : Shakespeare, Macbeth ; Milton, Lycidas, Comus, L'Allegro, Il Penseroso ; Burke, Conciliation with America ; Macaulay, Essays on Milton and on Addison.

For 1906, 1907, and 1908: *A* : Shakespeare, The Merchant of Venice, Macbeth ; The Sir Roger de Coverly Papers in the Spectator ; Irving, Life of Goldsmith ; Coleridge, The Ancient Mariner ; Scott, Ivanhoe, Lady of the Lake ; Tennyson, Gareth and Lynette, Elaine, The Passing of Arthur ; Lowell, The Vision of Sir Launfal ; George Eliot, Silas Marner. *B* : Shakespeare, Julius Caesar ; Milton, Lycidas, Comus, L'Allegro, Il Penseroso ; Burke, Conciliation with America ; Macaulay, Essay on Milton, Life of Johnson.

The examination is not designed to test the candidate's familiarity with the history of English literature or with the minutiae of the books prescribed, but to test his ability to express himself readily and easily in accordance with the usages of ordinary prose composition. To this end the candidate is urgently advised :

a. To train himself in writing concise paragraphs [in answer to questions upon the most striking narrative and descriptive incidents in the books of the *A*-list.

b. To study more systematically the contents of the books of the *B*-list, endeavoring to retain a knowledge of each book as an organized whole. This result will be best secured by writing numerous essays or compositions of considerable length upon the general purport of each book.

c. To cultivate—in all his writing—the habits of correct grammar and spelling (including proper names characteristic of the books read), of correct sentence-structure, punctuation, and paragraphing.

d. To avoid most carefully the error of believing that the mere oral memorizing of the contents of the books prescribed is the kind of preparation desired. The candidate is expected to learn from these books the art of expressing himself.

In every case the University examiner will treat mere knowledge of the books as less important than the ability to write good English.

(Candidates evincing superior ability in the entrance examination in English are permitted to enter Course 2 or Course 3 without taking Course 1). See under English Department.

No candidate markedly deficient in English will be admitted to any course in the University.

Regents' credentials (see p. 49) are not accepted in place of the entrance examination, unless they cover first year English, second year English, and either third year English or English Reading. School certificates are not accepted in place of the entrance examination in English. But candidates coming from schools the certificates of which have been accepted in other subjects may obtain exemption from the one-hour examination in books marked *A*, by submitting specimens of school work upon these books. Printed directions to this end should be procured from the Registrar, not later than the first of January.

Graduates of high schools and academies of approved standing and holders of a Regents' diploma or any sixty academic count Regents' certificate are admitted to the three year course in the College of Law without an examination in English.

The Cornell medical student's certificate issued by the Regents admits to the Medical College. See also under Medical College.

In History, at least one of the four following subjects must be offered :

2. Ancient history, with special reference to Greek and Roman history, and including also a short introductory study of the more ancient nations and the chief events of the early Middle Ages, down to the death of Charles the Great (814 A.D.)

3. Mediæval and modern European history, from the death of Charles the Great to the present time.

4. American history and civil government.

5. English history.

The preparation in history is meant to require one year of historical work wherein the study is given five times per week, or two years of

historical work wherein the study is given three times per week. Should *two* subjects, instead of *one*, be offered, each must have received at least half the amount of study above specified.

The examination in history will be so framed as to require comparison and the use of judgment on the pupil's part, rather than the mere use of memory. The examination will presuppose the use of good text-books, collateral reading, and practice in written work. Geographical knowledge will be tested by requiring the location of places and movements on an outline map, or otherwise.

(The requirement in History is based on the recommendations of the Committee of Seven of the American Historical Association.)

6. **Plane Geometry.** The usual theorems and constructions contained in the best text-books on this subject, including the general properties of plane rectilinear figures, the circle and the measurement of angles, similar polygons, areas; regular polygons and the measurement of the circle.

Also the solution of original exercises, including loci problems, and the mensuration of lines and plane surfaces.

(A knowledge of the metric system of weights and measures is assumed in all the examinations in mathematics.)

7. **Elementary Algebra.** As much as is contained in the better American and English text-books on this subject, including in particular :

The four fundamental operations with rational algebraic expressions, factors, common divisors and multiples, involution including the binomial theorem for positive integral exponents, radicals including the extraction of square roots of polynomials and of numbers, fractions including ratio and proportion, fractional and negative exponents, and arithmetic and geometric series.

Also the solution of equations of the first degree (both numerical and literal) involving one or more unknown numbers, the solution of quadratic equations, and of the easier cases of equations involving one or more unknown numbers that can be solved by the methods of simple or quadratic equations.

It is assumed that pupils will be required throughout the course to solve numerous problems which will involve putting questions into equations, and to fully discuss their solutions. Some of these should be practical problems chosen from mensuration, physics, etc.; the use of graphical methods and illustrations, particularly in connection with the solution of equations, is also expected.

8. **Solid Geometry.** The usual theorems and constructions contained in the best text-books on this subject, including the relations

of planes and lines in space ; the properties and measurement of prisms, pyramids, cylinders, and cones ; the sphere and the spherical triangle.

Also the solution of original exercises, including loci problems, and the mensuration of surfaces and solids.

9. **Advanced Algebra.** As much as is contained in the better textbooks on this subject, including in particular : Permutations and combinations, including easy applications to questions in probability ; irrational and complex numbers, with graphical representation of sums and differences of the latter ; elementary treatment of determinants, including the use of minors and the solution of linear equations ; undetermined coefficients, partial fractions, logarithms, and the elements of infinite series, including interpolation.

Also the solution of numerical equations of higher degree, and so much of the theory of equations, with graphical methods, as is necessary for their treatment, including Descarte's rule of signs and Horner's method, but not Sturm's functions nor multiple roots.

10. **Trigonometry.** *Plane Trigonometry.* The definitions and relations of the six trigonometric functions as ratios ; circular measurement of angles ; proofs of the principal formulas, especially those for the sine, cosine, and tangent of the sum or difference of any two angles whatever, and of double angles and half angles ; also the product expressions for the sum of two sines or of two cosines, etc. ; the transformation of trigonometric expressions by means of these formulas, the use of inverse functions, and the solution of right and oblique triangles, together with simple applications.

Spherical Trigonometry. The derivation of the important formulas, and the solution of right and oblique spherical triangles, together with the proper interpretation of ambiguous cases.

(The above requirements in mathematics are based largely upon those of the College Entrance Examination Board.)

Special Directions.—Of the preparatory work in Mathematics two things are specially demanded.

(1). That it shall have developed in the student a certain degree of mathematical maturity, and familiarized him with the subject matter and methods of mathematical work.

(2). That it shall have furnished him with those specific facts, an accurate and ready knowledge of which is indispensable in the further prosecution of his professional study.

The first of these demands is fairly well satisfied in the case of students who have conscientiously performed the mathematical work required for a Regent's diploma or for a diploma from one of our better

high schools. A careful review of this part of the student's work, given immediately before entering the University, would give him a broader and more comprehensive knowledge, would make clear to him the reasons for many things which he did not understand when he first went over them, and would equip him with better and more rapid methods of work.

On the other hand, most students who fail in their university mathematics fail because they are poorly equipped in the second requirement above mentioned. For example : they cannot perform the ordinary operations of algebra either rapidly or accurately, they do not know the theory of quadratic equations, they are lost among trigonometric formulas, and they blunder when they use logarithms. Instead of spending their time and energy upon their new work, they must spend much of it in studying up those things with which they ought to be familiar, and, thus handicapped, they cannot keep up the pace set by men who are properly prepared, and they cannot do the work that must be done to fit them for the professional work that follows.

It is not sufficient that the student *should once have known* his preparatory mathematics ; he must know them *at the time when he begins his work here*. It seems absolutely essential, therefore, that these subjects be very carefully reviewed just prior to entrance.

II. In Advanced German : *The examination in advanced German covers the examination in the elementary requirement in that subject.* The attention of teachers preparing students in German is called to the valuable report of the "Committee of Twelve" of the Modern Language Association of America, published by D. C. Heath & Co., Boston. Mailing price, sixteen cents.

Elementary German.—(a) The examination will require an accurate knowledge of the principles of grammar and especially of the declension of articles, adjectives, pronouns, and nouns ; the conjugation of verbs ; the prepositions and their government ; the uses of the modal auxiliaries ; the elementary rules of syntax and word order. The proficiency of the applicant will be tested by questions on the above topics and by the translation into German of simple English sentences. (b) Translation at sight of a passage of easy prose containing no rare words. It is believed that the requisite facility can be acquired by reading not less than two hundred duodecimo pages of simple German.

Practice in pronunciation, in writing German from dictation, and in the use of simple German phrases in the class room is recommended.

Advanced German.—[Equivalent to Intermediate German of the College Entrance Examination Board.] (a) Advanced grammar. In

addition to a thorough knowledge of accidence, of the elements of word formation, and of the principal uses of prepositions and conjunctions, the candidate must be familiar with the essentials of German syntax, and particularly with the uses of modal auxiliaries and the subjunctive and infinitive moods. The proficiency of the applicant will be tested by questions on these topics, and by the translation into German of easy connected English prose. (b) Translation at sight of passages from standard classical authors. It is believed that the requisite facility can be acquired by reading, in addition to the amount mentioned under elementary German, at least five hundred pages (a total, with the elementary requirement, of 700 pages) of classical and contemporary prose and poetry. It is recommended that not less than one-half of this reading be selected from the works of Lessing, Schiller, and Goethe.

It is recommended that the candidate acquire the ability to follow a recitation conducted in German and to answer in that language questions asked by the instructor.

For examination no specific authors or works are designated. An examination in pronunciation and the writing of German from dictation may be included. All applicants for admission are required to present a statement from their teacher, mentioning the text-books used and the authors read, including the number of pages translated from German into English and from English into German.

12. In Advanced French : *The examination in advanced French covers the examination in the elementary requirement in that subject.* The attention of teachers preparing students in French is called to the valuable report of the "Committee of Twelve" of the Modern Language Association of America, published by D. C. Heath & Co., Boston. Mailing price, sixteen cents.

Elementary French.—(a) The translation at sight of ordinary nineteenth century prose. It is important that the passages set be rendered into clear and idiomatic English. It is believed that the power of translating at sight ordinary nineteenth century prose can be acquired by reading not less than four hundred duodecimo pages from the works of at least three different authors. Not more than one-half of this amount ought to be from works of fiction. This number of pages is to include not only prepared work, but all sight reading done in class. (b) The translation from English into French of sentences or of a short connected passage, to test the candidate's familiarity with elementary grammar. Elementary grammar is understood to include the conjugation of regular verbs, of the more frequent irregular verbs, such as aller, envoyer, tenir, pouvoir, voir, vouloir, dire, savoir,

faire, and those belonging to the classes represented by ouvrir, dormir, connaître, conduire, and craindre ; the forms and positions of personal pronouns, the uses of other pronouns and of possessive, demonstrative, and interrogative adjectives ; the inflection of nouns and adjectives for gender and number, except rare cases ; the uses of articles, and the partitive constructions.

Pronunciation should be carefully taught and pupils be trained to some extent to understand spoken French. The writing of French from dictation is recommended as a useful exercise.

Advanced French : [Equivalent to Intermediate French of the College Entrance Examination Board.] (a) The translation at sight of standard French. It is important that the passages set be rendered into clear and idiomatic English. It is believed that the necessary proficiency in translation at sight can be acquired by reading, in addition to the elementary work, not less than six hundred duodecimo pages (a total, with the elementary requirement, of 1,000 pages) of prose and verse from the writings of at least four standard authors. A considerable part of the amount read should be carefully translated into idiomatic English. (b) The translation into French of a connected passage of English prose. Candidates will be expected to show a thorough knowledge of accidence, and familiarity with the essentials of French syntax, especially the uses of tenses, moods, prepositions, and conjunctions. Careful attention should be paid to pronunciation and the use of spoken French.

For examination no specific authors or works are designated. An examination in pronunciation and the writing of French from dictation will be included. All applicants for admission are required to present a statement from their teacher mentioning the text-books used and the authors read, including the number of pages translated from French into English and from English into French.

13. In Spanish : *Elementary Spanish*.—(a) The rudiments of grammar, including the conjunction of the regular and the more common irregular verbs, the inflection of nouns, adjectives and pronouns, and the elementary rules of syntax. (b) Exercises containing illustrations of the principles of grammar. (c) The reading and accurate rendering into good English of from 200 to 250 duodecimo pages of graduated texts, with translation into Spanish of easy variations of the sentences read. (d) Careful drill in pronunciation and writing Spanish from dictation.

Suitable texts for the elementary work are : Moratín's *El Sí de las Niñas*; Caballero's *La Familia de Alvaredo*; Alarcón's *El Capitán Veneno*, and Valera's *El Pájaro verde*.

Advanced Spanish.—(a) The reading of from 400 to 500 pages of modern prose from different authors. (b) Practice in translating Spanish into English, and English variations of the text into Spanish. (c) Continued study of the elements of grammar and syntax. (d) Mastery of all but the rare irregular verb forms and of the simpler uses of the modes and tenses. (e) Writing of Spanish from dictation and memorizing of easy short poems.

Suitable texts for the advanced work are : Galdós's *Doña Perfecta*; Valera's *Pepita Jimenez*; Alarcón's *El Final de Norma*; Valdés's *José*, and Padre Isla's version of *Gil Blas*.

14. In Latin : Candidates are examined in the entrance requirements adopted by the College Entrance Examination Board. These are :

a. i. **LATIN GRAMMAR** : The inflections ; the simpler rules for composition and derivation of words, syntax of cases and the verbs ; structure of sentences in general, with particular regard to relative and conditional sentences, indirect discourse, and the subjunctive : so much prosody as relates to accent, versification in general, and dactylic hexameter.

ii. **LATIN COMPOSITION** : Translation into Latin of detached sentences and very easy continuous prose based upon Caesar and Cicero.

b. **CÆSAR** : Any four books of the *Gallic War*, preferably the first four.

c. **CICERO** : Any six orations from the following list, but preferably the first six mentioned : The four orations against Catiline, Archias, the Manilian Law, Marcellus, Roscius, Milo, Sestius, Ligarius, the fourteenth Philippic.

d. **VIRGIL** : The first six books of the *Aeneid*.

15. In Greek : Candidates are examined in the entrance requirements adopted by the College Entrance Examination Board. These are :

a. i. **GREEK GRAMMAR** : The inflections of nouns and verbs ; the principles of the syntax of nouns and of verbs ; the structure of sentences in general, with particular regard to relative and conditional sentences, and to indirect discourse ; versification so far as applied to the dactylic hexameter.

ii. **GREEK PROSE COMPOSITION** : Consisting principally of detached sentences to test the candidate's knowledge of grammatical construction.

The examination in grammar and prose composition will be based on the first two books of Xenophon's *Anabasis*.

b. **XENOPHON** : The first four books of the *Anabasis*.

c. HOMER: The first three books of the *Iliad* (omitting II, 494-end).

16. Physics.—Students offering physics for entrance must show an acquaintance with the more important phenomena and with the principles involved in the explanation of them. They must, in addition to a year's work with the text-book, have completed a year of laboratory practice and must be prepared to work simple numerical problems upon the laws of falling bodies; upon the pendulum; upon properties of liquids and gases, including the determination of density; upon thermometry and calorimetry, including specific heats and heats of fusion and liquefaction; upon the relations of current and electromotive force and resistance; upon velocity, wave length, and resonance in sound; upon refractive indices, focal lengths, and the size and position of images in optics. The student must understand and be able to use the metric system in measurement and computation.

The laboratory work offered must be chiefly quantitative in character, and must consist of at least forty exercises or experiments of the character given in Nichols's "Outlines of Physics," or other works similar to this in grade and method. The laboratory work prescribed above must have been performed by the student individually, in evidence whereof he must present his laboratory note book at the time of examination. He must, moreover, be prepared to describe intelligently the method pursued and the results obtained in the experiments which he has performed.

17. Chemistry.—Students offering chemistry for entrance should have completed a course substantially equivalent to that outlined in the Report of the College Entrance Examination Board. This course comprises: "The chief physical and chemical characteristics, the preparation and the recognition of the following elements and their chief compounds: *Oxygen, hydrogen, carbon, nitrogen, chlorine, bromine, iodine, fluorine, sulphur, phosphorus, silicon, potassium, sodium, calcium, magnesium, zinc, copper, mercury, silver, aluminum, lead, tin, iron, manganese, chromium.*

" More detailed study should be confined to the italicized elements (as such) and to a restricted list of compounds, such as: Water, hydrochloric acid, carbon monoxide, carbon dioxide, nitric acid, ammonia, sulphur dioxide, sulphuric acid, hydrogen sulphide, sodium hydroxide.

" Attention should be given to the atmosphere (constitution and relation to animal and vegetable life), flames, acids, bases, salts, oxidation and reduction, crystallization, manufacturing processes, familiar substances (illuminating gas, explosives, baking powder, mortar, glass, metallurgy, steel, common alloys, porcelain, soap).

"Combining proportions by weight and volume; calculations founded on these and Boyle's and Charles's laws; symbols and nomenclature (with careful avoidance of special stress, since these are non-essential); atomic theory, atomic weights and valency in a very elementary way; nascent state; natural grouping of the elements; solution (solvents and solubility of gases, liquids and solids, saturation); strength (=activity) of acids and bases; conservation and dissipation of energy; chemical energy (very elementary); electrolysis. Chemical terms should be defined and explained, and the pupil should be able to illustrate and apply the ideas they embody. The theoretical topics are not intended to form separate subjects of study, but are to be taught only so far as is necessary for the correlation and explanation of the experimental facts.

"It is recommended that the candidate's preparation in chemistry should include:

- a. Individual laboratory work, comprising at least forty exercises.
- b. Instruction by lecture-table demonstrations, to be used mainly as a basis for questioning upon the general principles involved in the pupil's laboratory investigations.
- c. The study of at least one standard text-book, to the end that the pupil may gain a comprehensive and connected view of the most important facts and laws of elementary chemistry."

The course quoted above includes also the subjects of ionization, mass action and equilibrium. It is, however, undesirable to accord these topics more than mere mention in the elementary course. Moreover, the instruction should not be extended to cover the elements of qualitative analysis, for the time usually at the disposal of the teacher for the presentation of elementary inorganic chemistry is no more than sufficient to properly cover that subject.

The text-book used should be similar in scope and treatment to the "Elementary Chemistry" by Clarke and Dennis, and the laboratory work offered should be substantially equivalent to that given in the laboratory manual by the same authors. Applicants for credit in entrance chemistry should forward to the Department of Chemistry, Cornell University, Ithaca, N. Y., a note book, endorsed by his instructor, which should contain the student's own record of his laboratory experiments, written up in the laboratory at the time the experiments were performed. With this note book he should send a statement from his instructor giving the nature and extent of the course in chemistry that he has pursued. This statement should be entered upon a blank that will be forwarded by the Department of Chemistry upon application.

If the entrance examination is to be taken the note book and statement should be submitted at the time of the examination.

Charges should be prepaid on note books forwarded to the Department of Chemistry.

These books will be returned to the candidate upon application at any time within one year after the examination.

18. Botany.—The student should aim to acquire a knowledge of the general laws and fundamental principles of plant nutrition, assimilation, growth, etc., as exemplified by plants chosen from the different groups, as well as the general comparative morphology and the broader relationships of plants.

The following brief synopsis will suggest the topics and methods of study :

Study protoplasm in plants representing different groups, as spirogyra, mucor, nitella, and in the tissues of some of the higher plants, in order to demonstrate that this substance, though occurring in widely different plants, is fundamentally the same, and reacts in a similar manner to treatment with certain simple reagents.

Study absorption and osmosis in plant cells, employing such plants as spirogyra, mucor, the cells of some higher plant as the beet, and in the root hairs of a seedling plant ; test the effect of salt solutions in plasmolyzing the cells of these plants, then the restoration of turgescence in the same cells, and the movement of the protoplasmic membrane to demonstrate the part it plays in the process of absorption in plants.

Study nutrition by comparison of soil and water culture in seedlings ; study also root pressure ; turgidity in plant parts and cell masses ; transpiration ; the path of movement of liquids in higher plants, and the general structure correlated with these processes ; study nutrition of parasites (carnation rust, dodder), of mushroom.

Study the movement of gases in carbon assimilation as shown by spirogyra, vaucheria, elodaea, etc., in respiration as shown in germinating seeds ; study forms of chlorophyll bodies and the formation of starch, noting the parts of the plant where these processes take place, and using for comparison, spirogyra, zygnema, vaucheria, oedogonium ; liverworts like riccia, marchantia, cephalozia ; mosses like funaria, minnum ; and a few of the higher plants, including lemma.

Study growth of seedlings with reference to increase in length and diameter, direction of growth ; irritability shown by movement of parts in response to stimuli. (The topics as above arranged, as far as possible represent progression of function, and the study of the lower plants throws great light on the processes in the higher forms, and at

the same time familiarizes the student with a few of these lower forms).

Study general morphology, reproduction and fruiting in the different groups. Examples are suggested as follows: Among the algae,—*spirogyra*, *vaucheria*, *oedogonium*, *coleochetae*; among the fungi,—*mucor*, *saprolegnia*, *puccinia* (wheat rust), one of the *erisypheae* (powdery mildews), mushrooms; among the liverworts,—*riccia*, *marCHANTIA*, *cephalozia*; among the mosses,—*funaria*, *mnium*, or *polytrichum*; among fern plants,—a fern, *equisetum*, *selaginella*, *isoetes*; among gymnosperms,—one of the pines; among angiosperms,—one of the monocotyledons and a dicotyledon. (In this study it will be found useful in dealing with the lower plants to use the same plant as often as possible for the different topics, since fewer new names will be introduced and the student can concentrate the mind upon processes and structures. The plants suggested are chosen for a purpose since they represent progression of form and structure. The student should study all the stages suggested from the actual material, using text-books only as aids.)

In the algae, liverworts, mosses, and ferns the organs of reproduction can usually be easily studied by beginners if material is preserved at the proper stages in advance, or it may be grown as wanted. In the higher plants the study of the reproductive organs is attended with difficulty. Here and in other difficult topics the studies should be supplemented by demonstrations on the part of the teacher, and by collateral reading.

Study the special morphology of the higher plants by careful examination of types in the families of angiosperms. The following are suggested,—*ranunculaceae*, *cruciferae*, *leguminosae*, *rosaceae*, *unbeliferae*, *compositae*, *labiatea*, *cupuliferae*, *salicaceae*, *liliaceae*, *araceae*, *cyperaceae*, *geraniaceae*, *orchidaceae*.

As a part of the examination, careful notes and drawings must be presented as evidence that the work on the several topics outlined above has been faithfully and successfully accomplished. Those who wish to prepare an herbarium in addition, may present the same as partial evidence, but weight will be given to this only when the herbarium is prepared with a view of illustrating some definite problem either of relationship or of ecological study, as plant distribution in relation to soil, topography of the country, plant formations, etc.

19. Geology.—To meet the requirements in geology it will be necessary to devote to the study at least five periods a week for one year. Of this time not less than two periods a week must be given to laboratory and field work. The text-book used should cover the ground

treated in such books as Scott's "Introduction to Geology," Geikie's "Class Book of Geology," and Tarr's "Elementary Geology;" but in addition to the subjects included in these books the student will be expected to do collateral reading in such works of reference as Geikie's "Text-book of Geology," Dana's "Manual of Geology," Lyell's "Principles of Geology," and LeConte's "Elements of Geology." It would also be well to refer to books treating portions of Geology more specifically, such as Dana's "Characteristics of Volcanoes," Dana's "Corals and Coral Islands," Russell's "Volcanoes," Russell's "Lakes," Wright's "Ice Age in North America," Russell's "Glaciers," etc. The examination will test not merely the knowledge upon the text-book itself, but also the range and thoroughness of the work done with reference books. Carefully written digests of the parts read in the reference books, if certified to by the teacher, may be offered in evidence of the amount of work done with them.

Much stress will be placed upon that part of the examination testing the laboratory and field work. This laboratory and field work should in large measure be made a study of the home geology; and evidence of good work in this connection will be necessary in order to pass the subject. Note books, certified to by the teacher, may be presented as evidence of work done in the field and laboratory.

In the laboratory the common minerals and rocks should be studied so that the pupil may identify them without difficulty. Photographs of geological phenomena should also be studied, and training be given in the interpretation of geological maps. An elementary knowledge of paleontology should be obtained by the study of some of the common fossils; and if the school is situated in a fossiliferous region, field work in stratigraphic geology should be included, together with the collection of fossils and their identification in the laboratory. Some hints concerning the nature of the work expected in the laboratory and the field may be gained from Tarr's "Suggestions for Laboratory and Field Work in High School Geology."

20. Zoology.—The examination in Zoology will consist of two parts as follows:

a. Invertebrate Zoology.—The candidate must have devoted the equivalent of five periods a week for at least one-half year to the study of invertebrate zoology; and the greater part of this work must have been laboratory practice in the observation of living forms and in dissection. His laboratory notes and drawings, endorsed by the teacher, will be required at the time of the examination as evidence of the nature of this part of the work. This laboratory practice should include a study of at least thirteen of the forms named in the following

list : amœba, paramœcium, hydra, sea-anemone, star-fish, sea-urchin, earth-worm, cray-fish, lobster, spider, millipede, centipede, locust, (grasshopper), dragon-fly, squash-bug, butterfly, bumblebee, clam, snail and squid.

The laboratory work must be of the character given in Needham's "Elementary Lessons in Zoology," Colton's "Practical Zoology," Kellogg's "Elementary Zoology," or other works similar to these in grade and method. In addition to the above books, the student should have access to some advanced work like Parker and Haswell's "Text-book of Zoology," or Adam Sedgwick's "Student's Text-book of Zoology," 1898, for reference.

The examination will call for a discussion of the habitat, mode of life, and post-embryonic development (transformation) as well as of the morphology of the forms studied.

b. Vertebrate Zoology.—To meet the requirement there should be submitted drawings and notes in evidence of the dissection of the viscera of forms representing groups as follows : Mammal (cat, dog, monkey, rabbit, rat or opossum); Bird (common fowl, pigeon, or other convenient form); Reptiles (serpent, and either a turtle or an alligator); Batrachians (salamander, toad or frog, and a tadpole); "Fishes" (sturgeon, amia, or gar; cat-fish, sucker, carp, or other soft-rayed fish; bass, perch or other spiny-rayed fish; shark or ray; lamprey or hag; lancelet (*amphioxus*), and a simple tunicate, *i. e.*, boltenia or molgula).

Particular attention should be paid to the brain, the heart and the respiratory apparatus. The muscles of the arm and leg should be dissected upon a mammal, a bird, and a reptile, and the differences pointed out. There must be prepared a skeleton (which need not be mounted) of a mammal, bird or fish; and skulls of at least five other vertebrates. (In preparing these remember that the hyoid goes with the skull). The skulls, with proper labels, must be submitted at the examination.

Two mammals should be compared in respect to their habits, food, mode of locomotion, etc.; likewise two birds, two reptiles, two batrachians, and two "fish."

Besides the practical work above indicated, the student must gain from lectures, or from text-books designed for high schools or colleges (*e. g.*, Parker and Haswell's "Text-book of Zoology," 1897, or Adam Sedgwick's "Student's Text-book of Zoology," 1898), a comprehensive knowledge of the members of the classes or groups represented by the forms studied as described above. This knowledge must include their geographical distribution, habits, and relation to human

beings, whether beneficial or injurious, directly or indirectly; the relations of the young to the parent in respect to oviparity and viviparity and the exceptions to the general rules; the form and structure of the red blood corpuscles and the exceptions to the general rules. In case some point of information in your note book is derived from a text-book or a cyclopedia, give an exact reference to the source of information.

21. Drawing. See under Architecture and Mechanical Engineering.

ADMISSION WITHOUT EXAMINATION.

(For the specific entrance subjects required for admission see under college concerned).

I. On Regents' Credentials.

Diplomas and sixty count academic certificates issued by the Regents of the University of the State of New York are accepted in place of examinations in all the subjects required for entrance which are covered by such credentials, including upon the recommendation of the University departments concerned, the subjects of French, German, Spanish, Physics, Chemistry, Botany, Geology and Zoology. A statement from the teacher giving in detail the work done and the proficiency attained in these subjects, must be submitted by the holder of the credentials.

No other credentials, including pass cards and certificates (for exceptions see under Veterinary and Medical Colleges), issued by the Regents are accepted unless they are presented by the holder of a Regents' diploma or sixty count academic certificate.

"The "Equivalent" Academic Diploma and "Equivalent" sixty count academic certificate will not be considered except for admission to Law."

Students who have tried entrance examinations and failed to pass are not entitled to the privilege of admission on school certificates or Regents' credentials.

If a student fail in any subject in the University that depends upon an entrance subject, for which Regents' credentials have been accepted, the credits for that entrance subject may be cancelled.

To secure exemption from the entrance examinations in English, (see page 35), the Regents' diploma or sixty count academic certificate must cover first year English, second year English, and either third year English or English Reading.

Application for credit in all subjects for which credit is desired must be made at the time of the admission of the applicant, and not be postponed to any later date in his course.

Diplomas, certificates, and statements should be sent by mail to the Registrar before the opening of the term.

II. On School Certificates.

(For the specific entrance subjects required for admission, see under college concerned).

The following rules and regulations have been adopted by the University Faculty of Cornell University on the subject of admission by certificate :

1. Certificates of work done in public and private schools, in or out of the state, will not be accepted in lieu of examinations, unless the applicant has completed a full course in the school, and has been duly graduated after at least one year in the school, and the University authorities are satisfied regarding the standing of the school.
2. The application for the admission of a student by certificate must be made by the principal of a school and not by the candidate himself.
3. The application from the principal must be accompanied by full and specific information with regard to the completeness and thoroughness of the studies and course in which instruction is given. In case a catalogue or circular is published, a copy thereof should also be furnished.
4. Admission by certificate is in all cases provisional. If a student fail in any subject in the University that depends upon an entrance subject for which a certificate has been accepted, the credit for that entrance subject may be cancelled. Certificates from schools whose students prove to be imperfectly fitted will ultimately not be considered.
5. Subjects in which an examination has been passed for admission to the school, may be included in the certificate, but in all cases the full information called for by the blank should be given.
6. *No school certificate will be accepted in place of the entrance examination in English (see pages 35, 36, and 59).*
7. The committee having charge of the acceptance of certificates may meet at any time during the collegiate year, but the certificate should be forwarded as soon after the graduation of the student as is possible, and at least as early as the first of September.
8. The University does not engage in advance to accept the certifi-

cates of any school, and the previous acceptance of such certificates merely raises the presumption that similar certificates may be accepted again, but does not establish a permanent right to such acceptance.

9. Application for credit in all subjects for which credit is desired, must be made at the time of the admission of the applicant, and not be postponed to any later date in his course.

10. Students who have tried entrance examinations and failed to pass are not entitled to the privilege of admission on school certificates or Regents' credentials.

III. On the Certificates of the College Entrance Examination Board.

(For specific entrance subjects required for admission see under college concerned.)

The certificates issued as the result of the examinations to be held in June by the College Entrance Examination Board of the Middle States and Maryland at Ithaca and various other places will be accepted under the same conditions as if such examinations were held by Cornell University. See pages 33 and 34.

Students who have tried entrance examinations and failed to pass are not entitled to the privilege of admission on school certificates or Regents' credentials.

In June, 1905, the entrance examinations of Cornell University will be the equivalent examinations of the College Entrance Examination Board, of which Cornell University is a member. These examinations will be held June 19-24, 1905. See also page 34.

All applications for examination must be addressed to the Secretary of the College Entrance Examination Board, Post-Office Sub-Station 84, New York, N. Y., and must be made upon a blank form to be obtained from the Secretary upon application.

Applications for examination at points in the United States east of the Mississippi River (also at Minneapolis, St. Louis, and other points on the Mississippi River) must be received not later than Monday, June 5, 1905.

Applications for examination at other points in the United States or in Canada must be received not later than Monday, May 29, 1905.

Applications for examination at points outside of the United States and Canada must be received not later than May 15, 1905.

Applications received later than the date named will be accepted when it is possible to arrange for the examination of the candidates concerned, *but only upon payment of five dollars in addition to the usual examination fee.* Candidates filing belated applications do so at their own risk.

The examination fee is five dollars for all candidates examined at points in the United States and Canada, and fifteen dollars for all candidates examined at points outside of the United States and Canada.

Candidates for admission to Cornell University who are examined at Ithaca, N. Y., in English alone, will in 1905 be required to pay an examination fee of only one dollar. If, however, the applications of such candidates are not received by the Secretary of the College Entrance Examination Board on or before June 5, 1905, an additional fee of five dollars must be paid.

A list of the places at which the examinations are to be held in June, 1905, will be published about March 1. Requests that the examinations be held at particular points, to receive proper consideration, should be transmitted to the Secretary not later than February 1.

For further particulars see page 33 and address Secretary of College Entrance Examination Board, Postoffice Sub-station No. 84, New York City.

IV. As Special Students.

Persons of the requisite age may be admitted as special students, without examination, provided they give evidence of ability to do creditably special work in the University, are recommended to the Faculty concerned by the professor in charge of the department of study in which they desire to take a large part of their work, and have not already been admitted to the University, nor, having applied for admission, been rejected. By Faculty action, the recommendation of a special student is to be referred to a committee for provisional acceptance before final ratification by the Faculty concerned. Such students may graduate in any of the courses, on condition of passing all the required examinations, including those for admission. Students are not permitted to make up deficiencies in entrance subjects by attending university instruction in those subjects, but are required to take the necessary instruction outside of the University. Special students are subject to the same regulations in regard to examinations and number of hours as students in the other courses.

Special students in the College of Arts and Sciences are admitted at the age of twenty-three years.

Candidates for admission as special students should apply to the Registrar for application blanks and should correspond directly with the professor in whose department they expect to take work, in order to secure a recommendation.

Special students in the College of Law are admitted at the age of twenty years.

Special students in the College of Agriculture are admitted at the age of eighteen years.

Special students in the College of Architecture and Sibley College are admitted at the age of twenty-one years.

Special students in Sibley College will be expected to work with regular classes wherever practicable, and to pursue a regular mechanic arts course, such as is considered by the Director to be suitable for artisans and other optional students, not candidates for a degree.

The College of Civil Engineering admits as special, students of the age of twenty-one, only graduates of other institutions pursuing advanced work, when the applicants are not candidates for a degree.

ADMISSION TO ADVANCED STANDING.

1. On Examination. On presenting evidence of good character, or, in case he comes from another college or university, a letter of honorable dismissal, a candidate may be admitted (for exception see under College of Law) to any class at the beginning of any term not later than the first term of the senior year, provided he appears, on examination, to be well versed in the following subjects:

a. In the studies required for admission to the freshman class of the course which he proposes to enter. But diplomas and certificates will be received for certain of these studies, as stated on pages 49-51.

b. In all the studies already required of the class to which admission is sought, or in accepted equivalents therefor.

In a subject in which examinations are held only at stated times the candidate may, at the option of the department concerned, be required to wait until the first regularly recurring examination.

2. Without Full Examinations. Applicants for a baccalaureate degree coming from other colleges and universities, may be admitted (for exception see under College of Law) provisionally to such standing and upon such terms as the Faculty concerned may deem equitable in each case, regard being had to the applicant's previous course of study, and to the evidence of proficiency exhibited. Every such candidate for a baccalaureate degree is required, at the time of making his application, to forward to the Registrar of the University along with a catalogue of the institution in which he has studied, a careful statement, duly certified to, of the studies which he has pursued, and the degree of proficiency attained therein, including his record at the *entrance* examinations and a letter of honorable dismissal. This statement should be made as full as possible, giving details of subjects taken, authors read, and in mathematics, the text-books used. To

avoid delay in arranging the course, these credentials should be presented at an early date in order that the status of the applicant may be determined as far as is feasible before his arrival. Applications for credit in all subjects for which credit is desired, must be made at the time of the admission of the applicant, and not be postponed to any later date in his course.

A student who has thus been admitted provisionally to a class, is considered to be in full and regular standing in that class, if, having taken the regular studies of the course he give proof, by passing term examinations, that he is able to go on satisfactorily with the class to which he has been temporarily assigned. Should he be unable to pass these examinations, special examinations may then be held or the terms of his admission revised, and he shall take the position and rank to which he may thereby be found entitled.

Admission to the Graduate Department.—Applications for admission to the Graduate Department are to be addressed to the Dean of the University Faculty. See page 64.

RESIDENCE AND GRADUATION.

REGISTRATION EACH TERM.

At the beginning of every term each student must obtain a Certificate of Registration from the Registrar of the University, and no student, after having been once admitted to the University, will be allowed to register after the close of the Registration Day, except by special permission of the Faculty concerned.

REGISTRATION OF STUDIES.

Students in all undergraduate courses register at the beginning of the collegiate year at the Registrar's office for the work of the entire year. No credit will be allowed for work not so registered. Changes in registration will not be allowed later than one week after Registration Day in the first term except by special permission of the Faculty concerned.

EXERCISES OF THE TERM.

In the College of Arts and Sciences, students may take twelve to eighteen hours; but no student will be graduated until he has passed successfully examinations in work which shall amount to an aggregate of fifteen hours a week during the entire four years, exclusive of the requirement of drill and gymnasium.

In the technical courses, the number of hours required each term may be seen in the detailed statement of those courses.

In all courses, two hours and a half of laboratory work, and, in the technical courses, three hours of drafting or shop work, are regarded as the equivalent of one recitation or lecture.

PAYMENTS TO THE UNIVERSITY.

Annual Tuition Fees.

(FOR FREE TUITION SEE PAGE 56.)

	<i>Regular.</i>	<i>Special.</i>
Graduate Department (General)-----	\$100 -----	---
Graduate Department (Technical)-----	125 -----	---
College of Arts and Sciences-----	100 -----	\$125
Law-----	100 -----	125
Medicine -----	150 -----	150
Veterinary (for free tuition see p. 56)-----	100 -----	125
Agriculture (for free tuition see p. 56)-----	100 -----	125

	<i>Regular.</i>	<i>Special.</i>
Architecture-----	\$125 -----	\$125
Civil Engineering-----	125 -----	125
Mechanical Engineering-----	125 -----	125

The \$100 tuition is payable \$55 at beginning of first term and \$45 at beginning of second term; the \$125, \$70 and \$55; the \$150, \$85 and \$65; in the Medical College in New York City, the entire fee is paid at the beginning of the year.

These fees must be paid at the office of the Treasurer within twenty days after the registration day announced in the calendar.

Tuition is free to the students with State scholarships; to New York State students in the State Veterinary College; to students pursuing the prescribed course in Agriculture and intending to complete that course; and to special and graduate students in Agriculture taking at least two-thirds of their entire work in the College of Agriculture.

Any student who has received free tuition under the above regulations and who desires to change to a course for which tuition is charged, must first pay to the Treasurer of the University the tuition fees for the full time spent in the free tuition course.

Other Fees.

Students taking work in Sibley College are charged \$10 per half-year for material and extra expenses.

An incidental fee of \$7.50 per half-year, to cover cost of materials used, is required of all students in Agriculture, except those in the first two years of the regular course.

A fee of \$5, to cover expenses of graduation, degree, etc., is charged to each person taking the baccalaureate degree. This fee must be paid at least ten days before Commencement. The amount will be refunded should the degree not be conferred.

The fee charged for an advanced degree is \$10, and it must in all cases be paid at least ten days before Commencement. The amount will be refunded should the degree not be conferred.

Every person taking laboratory work or practicums in chemistry, physics, zoology, botany, or entomology, must deposit with the Treasurer security for the materials to be used in the laboratory or in the practicums. Supplies in the chemical and physical departments are furnished at New York City list prices. Students residing in University buildings must pay their room bills one half-year in advance. All the members of the University are held responsible for any injury done by them to its property.

EXPENSES.

The expense of text-books, instruments, etc., varies from \$25 to \$75 per annum.

The cost of living in Ithaca, including board, room, fuel, and lights, varies from \$4 to \$10 per week. By the formation of clubs, students are sometimes able to reduce their expenses to \$3.50 per week for room and board, and occasionally to even less than that amount.

A fair estimate of the yearly expenses is from \$300 to \$500, but much depends on the personal tastes of the student.

The cost of board, rent of furnished room, fuel, and lights, in Sage College or Sage College Cottage, which are exclusively for women, varies from \$5 to \$6.50 a week. A student occupying alone one of the best rooms pays \$6.50 a week. If two occupy such a room together, the price is \$5.75. Those occupying less desirable rooms, with two in a room, pay \$5 a week each. Both buildings are warmed by steam, lighted by electricity, and in most cases, the sleeping apartment is separated from the study.

The responsibility for the conduct of the students living in Sage College and the Cottage rests with the Warden of Sage College.

Letters of inquiry in regard to board and rooms at the Sage College and the Cottage should be addressed to Mr. G. F. Foote, Business Manager of Sage College, Ithaca, N. Y.

GRADUATION.

The First Degree.

The degrees of Bachelor of Arts, Bachelor of Laws, Bachelor of the Science of Agriculture, Doctor of Veterinary Medicine, Doctor of Medicine, Bachelor of Architecture, and the corresponding degrees of Civil Engineer and Mechanical Engineer, are conferred after the satisfactory completion of the respective courses.

The single degree of Bachelor of Arts will be conferred on students in the College of Arts and Sciences.

All these courses, except the courses in Law and Veterinary Medicine, require four years for their completion; and no student is allowed to graduate in less than four years of actual residence (except in case of admission to advanced standing, as elsewhere provided for), without special permission of the Faculty concerned; which permission will not be granted until the applicant has been in the University at least one year; nor will it be granted after the first term of the year in which he proposes to graduate.

The courses in Law and Veterinary Medicine require three years each for their completion.

SCHOLARSHIPS AND PRIZES.

STATE SCHOLARSHIPS.

Under the law of the State the Superintendent of Public Instruction is empowered to award annually a number of free scholarships in Cornell University equal to the number of Assembly districts in the State. These scholarships entitle the holder to free tuition for four years.

For particulars in regard to the Scholarships, application should be made to the Superintendent of Public Instruction at Albany, N. Y.

Holders of State Scholarships are notified that failure to register before the close of registration day of each term involves the severance of their connection with the University and consequently the forfeiture of their scholarships. The President of the University is required by law to send immediate notice of such vacancies to the Superintendent of Public Instruction and the Superintendent fills vacancies forthwith.

The law provides that "any State student who shall make it appear to the satisfaction of the President of the University that he requires leave of absence for the purpose of earning funds with which to defray his living expenses while in attendance, may, in the discretion of the President, be granted such leave of absence, and may be allowed a period not exceeding six years from the commencement thereof for the completion of his course at said University." Under this provision of the charter, the President of the University will, for the purposes indicated therein, grant leave of absence after an applicant has been regularly admitted to the University. The Scholarship will then be kept good; but will not be extended for more than *four* years from its date, unless application is made after at least one year from the time of entrance, in case of applicants who have acquitted themselves creditably in the University during this period. Those holding scholarships are therefore advised, if possible, to enter the University at once, and to postpone asking for leave of absence until after one year in the University has been completed.

UNIVERSITY UNDERGRADUATE SCHOLARSHIPS.

Pursuant to the action of the Trustees there will annually be thrown open to competition for all members of the freshman or first year class who registered in courses leading to first degrees, at a special

examination held at Ithaca at the beginning of the freshman year, eighteen scholarships of the annual value of \$200 each.

Students of high ability from the state of New York will have the additional advantage of being able to secure State Scholarships, as there is nothing in the University statutes to prevent a student from holding both a State Scholarship and a University Scholarship.

The name of every successful competitor for these scholarships is inserted in the annual Register of the University, together with the name of the school at which the competitor was fitted for college, and the name of the principal of the school; and these names remain in the Register so long as the scholarship is retained.

The statute in regard to scholarships is as follows:

1. There have been established by the University thirty-six undergraduate scholarships each of the annual value of \$200.

2. These Scholarships are named as follows: The Cornell Scholarships; the Lord Scholarships; the McGraw Scholarships; the Sage Scholarships; the Sibley Scholarships; the President White Scholarships; the Horace Greeley Scholarships; the John Stanton Gould Scholarships; the Stewart L. Woodford Scholarships.

3. These Scholarships are given for the first two years of any course on the basis of excellence in special examinations held at the beginning of the freshman year.

4. Recipients of the above scholarships must be free from entrance conditions.

5. These scholarships will be awarded on the basis of examinations in three of the six groups mentioned below. No scholarship will be awarded to any candidate who is reported markedly deficient in any subject in which he is examined, and the right is reserved to fill fewer than eighteen scholarships in the absence of a sufficient number of duly qualified candidates. Previous to entering this competitive examination, however, candidates are required to pass satisfactorily at the University the regular entrance examination in English, or the entrance examination in English given by the College Entrance Examination Board, or by offering satisfactory Regents' credentials covering first year English, second year English, and either third year English or English reading. See page 33 and 51. *Other diplomas and School certificates* are not accepted in place of this English examination.

[In and after 1906, however, (a) and (b) may not be taken by the same candidate and every candidate must take either (b) or (c) or (d).]

(a). Algebra through quadratic equations, and plane geometry.

(b). Solid geometry, advanced algebra, plane and spherical trigonometry.

(c). Greek.

(d). Latin.

(e). French.

(f). German.

The above examinations cover substantially the same ground as the entrance examinations in the respective subjects. See pages 37, 38, 39, 40, 41, 42 and 43.

6. The holder of a University Undergraduate Scholarship shall forfeit the right to the same in case said scholar shall during incumbency change the course registered in at the time of receiving the award, unless the records of entrance examinations shall show that, at the time of the holder's admission to the University, all the subjects required for admission to the course last chosen were passed, and all candidates must state before the scholarships are awarded what course they intend to pursue.

7. All persons shall be debarred from the competition for these Scholarships, who shall have participated in any previous competition for the same or shall have been in the previous year or years registered as a student in this University or in any other University or College.

8. These Scholarships will be forfeited at any time in case two-thirds of the Faculty present at any meeting, notice having been given at the meeting immediately before, shall decide that the holders have been guilty of negligence, or failure to maintain a high standard of scholarship, or of conduct of any kind that is unbecoming students holding such Scholarships.

9. Whenever any of these Scholarships shall for any reason become vacant, the vacancy shall be filled as the Faculty may determine.

10. The moneys due on these Scholarships are paid at the office of the Treasurer of the University in two equal payments, on the 15th of February, and the 15th of June, upon the certificate of the chairman of the Scholarship Committee that the record of the holder is satisfactory.

The Frank William Padgham Scholarship has an annual value of \$150 and will be assigned to the best competing candidate in the scholarship examination in the studies required for entrance to the regular course in Mechanical Engineering, who shall have had his preparatory education in the public schools of Syracuse, N. Y. For particulars address the Registrar. See also under Sibley College.

The Alumne Scholarship is an undergraduate scholarship of

\$100 for the present University year, and a like sum for each year hereafter so long as the sum is raised by the Associate Alumnae by annual subscription. The scholarship is to be given under the following conditions:

1. It shall be awarded to a self-supporting woman who has already spent at least one year in the University as a student.
2. The basis of award shall be excellence of scholarship as shown by the University records, and a need of financial aid.
3. The nomination for the scholarship shall be made by a committee of the Alumnae, who, after consultation with the Dean of the University Faculty and the Registrar as to the standing of the applicants, shall decide as to which one of them will be most benefited by the financial aid of the scholarship.
4. The approval of said nomination by the President of the University shall constitute an appointment.

The Boardman Senior Law Scholarship. A senior law scholarship of the value of one hundred dollars, the gift of Judge Douglass Boardman, the first Dean of the College, is awarded annually by the Faculty of Law in June to the Junior who during the preceding two years has, in the judgment of the Faculty, done the most satisfactory work in the College of Law. It is available during the Senior year and is payable in the same way as other University Scholarships.

State Grange Scholarships in Agriculture.—At its 31st annual meeting, held at Cortland, February 4, 1904, the New York State Grange resolved to "appropriate annually \$200 to be given to members of the Order in the form of four scholarships to any of the agricultural courses in Cornell University." The scholarships are each of a value of \$50, to be awarded to two men and two women who attain the highest standing on competitive examination. The candidate should apply to the Master of the Pomona Grange in his home county, or to the Deputy in counties that have no Pomona.

PRIZES.

(A special pamphlet on Prizes may be obtained from the Registrar.)

The Woodford Prize, founded by the Hon. Stewart Lyndon Woodford and consisting of a gold medal of the value of one hundred dollars, will be given annually for the best English oration, both matter and manner being taken into account.

The '86 Memorial Prize is an undergraduate prize in declamation to be awarded at a public contest held in May of each year, being the income of a sum of money left as a memorial by the class of 1886, and amounting to eighty-six dollars annually.

The '94 Memorial Prize is an undergraduate prize in debate to be awarded at a public contest held in January of each year, being the income of a fund established by the class of 1894 and amounting to about twenty-five dollars annually.

The Shakespeare Prize. The Shakespeare Prize, founded in 1887 by Mrs. Alfred Smith Barnes, of Brooklyn, consists of about fifty dollars, being the annual income from her gift of one thousand dollars.

The Guilford Essay Prize, founded in 1902 by the late James B. Guilford, to promote "a high standard of excellence in English prose composition," consists of about \$150, being the annual income from his bequest of \$3,000.

The Dante Prize, founded in 1902, by Professor Hiram Corson, in memory of his wife, Mrs. Caroline Rollin Corson, consists of a gold medal of the value of fifty dollars, to be awarded annually for the best competitive essay on Dante. In accordance with the wish of the founder, the prize is never to be given in money.

The Browning Prize. The Browning Prize, founded in 1902 by Professor Hiram Corson, consists of a gold medal of the value of fifty dollars, to be awarded annually for the best competitive essay on Robert Browning. In accordance with the wish of the founder, the prize is never to be given in money.

Prizes in German. An annual prize of one hundred dollars for three years has been offered by an eminent scholar interested in German literature, for the best essay upon the works of some representative German author.

The Horace K. White Prizes. These prizes, established by Horace K. White, Esq., of Syracuse, are awarded annually to the most meritorious students in the graduating class of the New York State Veterinary College, as follows: to the first in merit, fifteen dollars; to the second in merit, ten dollars.

Sibley Prizes in Mechanic Arts. Under the gift of the late Hon. Hiram Sibley, made in 1884, the sum of one hundred dollars will be annually awarded to those students in the Sibley College who shall, in the opinion of the Faculty of that institution, show the greatest merit in Sibley College work.

The Fuertes Medals, founded by Professor E. A. Fuertes and consisting of two gold medals, each of the value of one-half the amount of the income provided by the endowment fund.

The Sands Memorial Medal, founded by the family of the late Charles Goodwin Sands of the class of '90, is awarded to students of Architecture for all designs of exceptional merit presented in the regular competitions.

The Brown Memorial Medal to be awarded to students in Architecture was founded by Mr. John Hartness Brown in memory of his brother Clifton Beckwith Brown, of the class of 1900, who was killed on the field of battle at San Juan Hill.

The Central N. Y. Chapter A. I. A. Prize is a prize of twenty dollars given annually by the Central New York Chapter of the American Institute of Architects to the winner of first place in a competition in senior design.

GRADUATE DEPARTMENT.

Courses appropriate for graduate students and leading to advanced degrees are provided in the various departments, as indicated in the list of courses of instruction, and in the description of the departments and colleges. An inspection of these courses will show that the amount of instruction offered is greatly in excess of the amount of which any person can take advantage while an undergraduate student. Many of the courses are open to undergraduates who have prepared themselves by taking the necessary preliminary electives, but a large number of courses are specially adapted to the wants of graduate students. No sharp line of demarcation separates the two classes, but in all cases the necessary prerequisite work must have been taken. In nearly or quite every branch of study the advanced courses of lectures and the seminaries and laboratories afford abundant opportunities for carrying on profitable work of a high grade during two or three years after the baccalaureate degree has been taken. The facilities thus afforded commend themselves specially to graduates of those colleges elsewhere which do not offer a large range of electives during the undergraduate course.

LABORATORY AND SEMINARY FACILITIES.

In the graduate work the aim is to surround the student with an atmosphere of earnest devotion to the cause of the advancement of knowledge, and to excite a truly scholarly spirit. The greater part of such work is carried on in the numerous well-equipped laboratories and seminaries, in which the student, with the aid and under the intimate personal guidance and direction of the professor, is encouraged in the prosecution of original investigation of an advanced nature.

Graduate students have access to the alcoves of the library, as well as to the special collections in the seminary rooms, and thus have exceptional opportunities for prosecuting advanced work. The great library building, with its rich collections, affords an attractive and inspiring environment.

FELLOWSHIPS AND GRADUATE SCHOLARSHIPS.

Applications for fellowships and graduate scholarships should contain a full statement of the branches of study which the candidate

intends to carry on, if appointed ; and if any literary or scientific work has been produced which could be put in evidence, specimens should accompany the application. Those candidates who are graduates of other colleges or universities should submit recommendations from the instructors best acquainted with their ability and attainments in the special subjects which they desire to pursue. It should be borne in mind by such applicants that information cannot be too exact or detailed in the case of students not personally known to the appointing body.

The Statute in regard to Fellowships and Graduate Scholarships is as follows :

i. There have been established at this University the following Fellowships and Graduate Scholarships :

(a). Eight University Fellowships, denominated respectively, the Cornell Fellowship ; the McGraw Fellowship ; the Sage Fellowship ; the Schuyler Fellowship ; the Sibley Fellowship ; the Goldwin Smith Fellowship ; the President White Fellowship ; and the Erastus Brooks Fellowship.

(b). Five University Fellowships.

The above thirteen University Fellowships have been assigned to the following Departments or groups of Departments : Mathematics, Chemistry, Physics, Civil Engineering, Neurology and Physiology and Vertebrate Zoology (including Anatomical Methods and Human Anatomy and Microscopy, Histology, and Embryology) with Invertebrate Zoology and Entomology, Botany and Geology, Architecture, Agriculture and Horticulture and Veterinary Science, English, Germanic Languages, Romance Languages, one each ; Mechanical and Electrical Engineering, two.

(c). Two President White Fellowships, denominated ; first, the President White Fellowship of Modern History ; second, the President White Fellowship of Political and Social Science.

(d). Three Susan Linn Sage Fellowships in Philosophy.

(e). Two Fellowships in Political Economy.

(f). Two Fellowships in Greek and Latin.

(g). One Fellowship in American History.

The President White Fellowships in History and in Political and Social Science have an annual value of \$600 each ; the others have an annual value of \$500 each.

(h). Six Graduate Scholarships in the Susan Linn Sage School of Philosophy, each of the annual value of \$300.

(i). Ten Graduate Scholarships, each of the annual value of \$300, have been assigned to the following Departments or groups of Depart-

ments : Mathematics, Chemistry, Physics, Civil Engineering, Latin and Greek, Archaeology and Comparative Philology, Neurology and Physiology and Vertebrate Zoology (including Anatomical Methods and Human Anatomy and Microscopy, Histology and Embryology), with Invertebrate Zoology and Entomology, Botany and Geology, English, History, one each.

(j). The Oliver Graduate Scholarship in Mathematics, founded November, 1896, in memory of Professor James Edward Oliver, has an annual value of \$300 and is awarded under the same conditions as other graduate scholarships.

2. All candidates for Fellowships and Graduate Scholarships must be graduates of this University, or of some other institution having equivalent courses of instruction, and must be of high character and marked ability in some important department of study.

3. Fellows and Graduate Scholars will be selected by the University Faculty on the recommendation of the department in which the applicants desire to carry on the principal part of their work.

4. All applications must be filed with the Registrar on or before the 15th of April of the collegiate year preceding the one for which the application is made. Blank forms for application may be obtained from the Registrar.

5. The term of each Fellowship and Graduate Scholarship is one year; but the term may be extended to two years, providing the extension does not increase the number of Fellows and Graduate Scholars beyond that named in paragraph 1 of this act.

6. The moneys due on Fellowships and Graduate Scholarships are paid at the office of the Treasurer of the University in two equal payments, on the 15th of January, and the 1st of June.

7. In view of the fact that practical University instruction will be of use in training said Fellows and Scholars for future usefulness, each holder of a Fellowship or Graduate Scholarship shall be liable to render service to the University in the work of instruction or examination to the extent of four hours per week through the collegiate year. The distribution and assignment of this service shall be determined by the head of the department in which the Fellow or Scholar is doing the principal work. It is expected that the President White Fellows in History and Political Science will do a large part of their study in the President White Library, and to this end it is required that, except when, with the consent of the Librarian of the University, they are excused or assigned to other duties by the Professors of History and Political Science, said Fellows shall be in attendance in the Library not less than four hours each per day.

8. No person shall hold at one time more than one Fellowship or Graduate Scholarship, except in the case hereafter specified under paragraph 12 of this statute, and any Fellow or Scholar may be dispossessed of the income of the Fellowship or Graduate Scholarship by action of the University Faculty, if guilty of any offense, or of any course of conduct, which in the opinion of said Faculty shall render the holder unworthy of retaining such Fellowship or Graduate Scholarship; but final action in such cases by the Faculty shall be by ballot, and shall require a two-thirds vote.

9. Vacancies in Fellowships and Graduate Scholarships that occur after October 1st, in order to be filled, shall require a three-fourths vote of the Faculty present.

10. All persons elected to Fellowships and Graduate Scholarships are required, upon accepting their appointments, to file a bond of the face value of such Fellowship or Graduate Scholarship (with two sureties to be approved by the Treasurer), to pay the University in case of their resignation before the expiration of the time for which they were appointed, any sums which they may have received.

11. In all cases where Fellowships and Graduate Scholarships are not awarded, or when from any cause the income of one or more Fellowships or Graduate Scholarships may cease to be paid, or when the aggregate sum paid shall be less than the amount contemplated by this act, the surplus thus accruing shall be added to the principal of the loan fund for needy and meritorious students.

12. Either or both of the President White Fellowships in History and Political Science may, in the discretion of the University Faculty, be made a Traveling Fellowship for the purpose of study and investigation, the holder thereof making from time to time to said Faculty such reports of progress as may be required. In the case of a student of very exceptional ability and promise in the fields of either of these Fellowships, the two Fellowships may, in the discretion of said Faculty, for the sake of enabling very thorough research, be combined for a single year into one.

Special Fellowship in Architecture. See under College of Architecture.

Special Fellowship in Greek for 1905-1906. Apply to the Professor of Greek.

Honorary Fellowships.

A class of Fellowships termed Honorary Fellowships was established in 1898. These Fellowships are open only to persons already holding the Doctor's degree. Holders of such Fellowships are to receive no emoluments and are not to be charged tuition. These Fellowships

are to be conferred only upon persons actually in attendance at the University.

Admission.

Graduates in the several courses of this University, or of other institutions in which the requirements for the baccalaureate degree are substantially equivalent, may upon the recommendation of the Committee on Graduate Work and Advanced Degrees, be admitted to the graduate department. Such applicants may further be admitted to candidacy for the Master's and Doctor's Degree on recommendation of the same committee, in case the previous course of study and preparation in the major and minor subjects to be pursued, is accepted as adequate by the departments concerned. Graduate students who are not candidates for a degree, as well as those who are, are required to work under the direction of a special committee of the University Faculty, appointed for the purpose of supervising and directing their work. Tuition fees, except in Agriculture, are charged in all cases, including candidacy for degrees *in absentia*.

Applications for admission to the graduate department are to be addressed primarily to the Dean of the University Faculty. Full details should be forwarded of the candidate's previous course of study, the degree desired, and the special preparation already had in the major and minor subjects to be pursued.

The applicant would naturally communicate also with the professors in whose departments he intends to study, as they must ultimately approve of his application.

In acting upon an application for graduate work, the first question to be decided is whether the degree already taken by the applicant is substantially the equivalent of one of the degrees given at this University, so that the applicant may be admitted to the graduate department. Full information upon this point is therefore required, including a general statement of the character of the course pursued, with special reference to the amount of mathematics and languages. Blank forms of application may be obtained from the Dean of the University Faculty.

After this point has been decided, the second question is whether the applicant is qualified to enter upon advanced work in the special departments of study in which the advanced degree is desired. In order to decide this question, a specific and detailed statement is to be made of the previous course of study and preparation in the major and minor subjects to be pursued. This statement is then submitted to the departments concerned for approval.

Official evidence of all the above statements must ultimately be presented.

After the status of the applicant is determined by the general committee, he is then put under the supervision of the special committee conducting the work which he desires to pursue. The special committee is made up of the professors in charge of the work in the major and minor subjects. It has been decided by the Faculty that instructors are not eligible for membership on the special committees nor on the committees conducting examinations. The chairman of the special committee, after consultation with the other members of the committee, is assumed to represent their views of action, and to be the regular channel of communication between candidates and the general committee; conveying or indorsing, for instance, petitions from candidates, and forwarding recommendations for changes in the announcements of major and minor subjects, or additions suggested to the membership of the special committee itself, either for the guidance of the work of candidates or to complete the number of examiners.

The function of the general committee is to decide matters of precedent or procedure or policy, securing Faculty action where necessary, and to be the channel of communication between the special committee and the University Faculty.

Advanced Degrees.

Courses of graduate study leading to advanced degrees are provided in the following departments : Semitic Languages, Classical Archæology and History of Art, Comparative Philology, Greek, Latin, German Languages, Romance Languages, English, Philosophy, Science and Art of Education, History and Political Science, Mathematic Physics, Chemistry, Botany, Entomology and General Invertebrate Zoology, Physiology and Vertebrate Zoology and Neurology, Anatomical Methods and Human Anatomy, Microscopy and Histology and Embryology, Geology and Paleontology and Mineralogy, Agriculture, Horticulture, Veterinary Science, Architecture, Civil Engineering, including Bridge, Railroad, Sanitary, Hydraulic and Geodetic Engineering, and in Mechanical Engineering, including Electrical, Steam and Marine Engineering, Naval Architecture, and Railway Mechanical Engineering.

Candidates for advanced degrees must present themselves for examination in one major and two minor subjects (except for the Master's degree, for which one major and one minor are required), which must have been determined upon, with the approval of a committee of the University Faculty, as early as October 15 of the year in which

the degree is expected to be given, if it be the Master's degree, or of the year preceding that in which the degree is expected to be given, if it be the Doctor's degree.

The above date is the limit for the acceptance of applications and for the selection of majors and minors, in the case of applicants who desire to receive credit for attendance during the whole of the academic year then entered upon.

The work of candidates for advanced degrees in the general courses must be devoted to those subjects (one major and one or two minors,) which may be comprised within the limits of one department of instruction, or may extend to two or three ; with the provision, however, that, except in case of special permission to the contrary granted by the University Faculty, the subjects shall be so related to one another as to imply a definite aim on the part of the student. The subject of the thesis required must be filed with the Registrar, with the written approval of the special committee in charge of the work of the candidate, and be announced to the University Faculty as early as December 1 of the year in which the degree is expected to be given, and the paper in its completed form must be presented as early as May 1. Theses accepted are to be delivered to the Registrar on or before the Friday preceding Commencement.

The degree of Master is intended to represent a year of faithful work of an advanced character performed by a student who has previously taken a degree fully equivalent to that which is given in this University at the completion of four years of undergraduate work. The degree of Doctor is intended to represent not a specified amount of work, covering a specified time, but long study and high attainment in a special field, proved in the first place, by the presentation of a theses which displays the power of independent investigation, and in the second place, by passing corresponding examinations upon the ground covered by the three subjects chosen at the beginning of the candidacy and approved by the University Faculty.

Successful candidates for the degree of Master must deposit one copy of the Thesis in the University Library.

Successful candidates for the degree of Doctor must print their theses and deposit fifty copies in the University Library. In the title page of each of these copies shall appear the statement that the theses was presented to the University Faculty of Cornell University for the degree in question. Unless the printed copies be previously deposited in the University Library, a type-written copy of the theses must be delivered to the Registrar on or before the Friday preceding the Commencement at which the degree is conferred. This type-written copy is to become the permanent property of the University.

A text-book, presumably written and published without reference to the degree for which it was presented, will not be accepted in lieu of a thesis.

The final examinations for these degrees may be both oral and written, and in the non-technical courses are to be in charge of a committee of not less than three members, except for the Master's degree, where two members may suffice. These examinations occur in the second week before Commencement, except in the case of candidates who take their examination in a year subsequent to that in which the required amount of resident study was completed. In case of necessity, the examinations may be held during the week next preceding that now fixed for holding them.

In the final examination for advanced degrees, the examination of the thesis shall regularly precede the further examination of the candidate. In the case of students who take the examination in the year subsequent to that in which the required amount of study has been completed, the special committee is authorized to arrange such examinations at any time during the University year; provided that two weeks' notice be given to the chairman of the general committee.

The special requirements for these degrees are as follows:

The Master's Degree.

Hereafter, in place of the degrees of Master of Arts, Master of Philosophy, Master of Letters, and Master of Science, the one degree of Master of Arts is to be conferred. See pages 69 and 70.

Candidates for the Master's Degree whose major subject is in a department under the direction of the College of Agriculture, the College of Architecture, the College of Civil Engineering, or of Sibley College, are required to register for the corresponding Master's Degree, that is, M.S. in Agr., M.S. in Arch., M.C.E., or M.M.E.

The degree of Master of Science in Architecture is to be conferred as heretofore on those who have taken the corresponding baccalaureate degree here, or at some other college or university where the requirements for the said baccalaureate degree are equal to those of this University, in case the candidate has spent at least one year at the University, pursuing an accepted course of study, upon presenting a satisfactory thesis and passing the required special final examinations as above.

The degree of Master of Civil Engineering, Master of Mechanical Engineering, or Master of Science in Agriculture is conferred, after at least one year of resident study, on candidates who have received the corresponding first degree, upon presenting a satisfactory thesis

and passing the required special final examination as above. In special cases graduates of this University, on the recommendation of the special committee that would have charge of their work, may, by vote of the University Faculty in each case, become candidates for the degree of M.C.E., M.M.E., and M.S. in Agr., after two years of professional practice and study *in absentia*.

Candidates for degrees *in absentia* are to appear in person at the University to be examined, and to receive the diploma at Commencement.

The time spent in study for the Master's degree, whether that degree be taken or not, may be counted in the time required for the Doctor's degree, provided the special committee in charge of the work approve, certifying the work done as suitable to such Doctor's degree.

The Degree of Doctor of Philosophy.

Hereafter, in place of the degrees of Doctor of Philosophy and Doctor of Science, the one degree of Doctor of Philosophy is to be conferred.

The degree of Doctor of Philosophy is conferred on graduates of this University, and of other universities and colleges whose requirements for the baccalaureate degree are equal to those of this University on the following conditions :

1. In order to become a candidate, the applicant must have pursued a course of study substantially equivalent to that required for graduation in this University in the Academic Department.

2. The candidate is expected to spend at least three years at the University, pursuing a course of study marked out by the University Faculty. Graduate work in a university elsewhere may, by a special vote of the University Faculty, be accepted ; but at least one year's residence at this University is in all cases required.

3. He must present a thesis of such a character as shall display power of original and independent investigation, and must pass the requisite special final examinations. Before the degree is conferred, a type-written copy of the thesis must be deposited in the University Library, unless the required number of printed copies be already deposited. The diploma for the degree shall be withheld until the required number of copies be so deposited. [See also pages 70 and 71].

The work of graduate students is expected to be in large measure independent of the regular courses of instruction. The special announcement of each department and college will, however, indicate the courses which are available as a basis for graduate work.

COLLEGE OF ARTS AND SCIENCES.

FACULTY OF ARTS AND SCIENCES.

JACOB GOULD SCHURMAN, A.M., D.Sc., LL.D., President.

WALTER FRANCIS WILLCOX, LL.B., Ph.D., Dean, and Professor of Political Economy and Statistics.

GOLDWIN SMITH, D.C.L., LL.D., Professor of English History, Emeritus.

GEORGE CHAPMAN CALDWELL, B.S., Ph.D., Professor of Chemistry, Emeritus, and Lecturer on Chemistry.

HIRAM CORSON, A.M., LL.D., L.H.D., Professor English Literature, Emeritus, and Lecturer on English Literature.

THE REV. CHARLES MELLEN TYLER, A.M., D.D., Sage Professor of the History and Philosophy of Religion and of Christian Ethics, Emeritus, and Lecturer on the History and Philosophy of Religion and of Christian Ethics.

BURT GREEN WILDER, B.S., M.D., Professor of Neurology, Vertebrate Zoology, and Physiology.

THOMAS FREDERICK CRANE, A.M., L.H.D., Dean of the University Faculty, and Professor of the Romance Languages and Literatures.

JOHN HENRY COMSTOCK, B.S., Professor of Entomology and General Invertebrate Zoology.

WATERMAN THOMAS HEWETT, A.M., Ph.D., Professor of German Language and Literature.

EDWARD LEAMINGTON NICHOLS, B.S., Ph.D., Professor of Physics.

JAMES MORGAN HART, A.M., J.U.D., L.H.D., Professor of the English Language and Literature.

JEREMIAH WHIPPLE JENKS, A.M., Ph.D., LL.D., Professor of Political Economy and Politics.

LUCIEN AUGUSTUS WAIT, A.B., Professor of Mathematics.

GEORGE LINCOLN BURR, A.B., LL.D., Professor of Mediæval History.

CHARLES EDWIN BENNETT, A.B., Litt.D., Professor of Latin.

SIMON HENRY GAGE, B.S., Professor of Histology and Embryology.

GEORGE WILLIAM JONES, A.M., Professor of Mathematics.

JAMES EDWIN CREIGHTON, A.B., Ph.D., L.L.D., Sage Professor of Logic and Metaphysics.

- EDWARD BRADFORD TITCHENER, M.A., Ph.D., LL.D., Sage Professor of Psychology.
- GEORGE FRANCIS ATKINSON, Ph.B., Professor of Botany with special reference to Comparative Morphology and Mycology.
- RALPH STOCKMAN TARR, B.S., Professor of Dynamic Geology and Physical Geography.
- THE REV. NATHANIEL SCHMIDT, A.M., Professor of the Semitic Languages and Literatures.
- GEORGE PRENTICE BRISTOL, A.M., Professor of Greek.
- CHARLES DE GARMO, Ph.D., Professor of the Science and Art of Education.
- EVANDER BRADLEY McGILVARY, A.M., Ph.D., Sage Professor of Ethics.
- LOUIS MUNROE DENNIS, Ph.B., B.S., Professor of Inorganic Chemistry.
- JOSEPH ELLIS TREVOR, Ph.D., Professor of Physical Chemistry.
- WILLIAM PERCY VAN NESS, Major, U.S.A., Professor of Military Science and Tactics.
- JOHN ROBERT SITLINGTON STERRETT, Ph.D., LL.D., Professor of Greek.
- CHARLES HENRY HULL, Ph.D., Professor of American History.
- FRANK ALBERT FETTER, A.B., Ph.D., Professor of Political Economy and Finance.
- WILLIAM RIDGELY ORNDORFF, A.B., Ph.D., Professor of Organic and Physiological Chemistry.
- ERNEST MERRITT, M.E., Professor of Physics.
- WILDER DWIGHT BANCROFT, A.B., Ph.D., Professor of Physical Chemistry.
- HENRY SHALER WILLIAMS, Ph.D., Professor of Geology and Director of Geological Museum.
- JAMES McMAHON, A.M., Professor of Mathematics.
- JOHN HENRY TANNER, B.S., Ph.D., Professor of Mathematics.
- JOHN ALBRECHT WALZ, Ph.D., Professor of the German Language and Literature.
- CHARLES VANPATTEN YOUNG, A.B., Acting Professor of Physical Culture and Director of the Gymnasium.
- GEORGE SYLVANUS MOLER, A.B., B.M.E., Assistant Professor of Physics.
- HERBERT CHARLES ELMER, A.B., Ph.D., Assistant Professor of Latin.
- WILLIAM ALEXANDER HAMMOND, A.M., Ph.D., Assistant Professor of Ancient and Mediæval Philosophy and *A*Æsthetics, and Secretary of the University Faculty.

- WILLARD WINFIELD ROWLEE, B.L., D.Sc., Assistant Professor of Botany with special reference to Comparative Histology and Systematic Botany.
- FREDERICK BEDELL, Ph.D., Assistant Professor of Physics.
- GILBERT DENNISON HARRIS, Ph.D., Assistant Professor of Palæontology and Stratigraphic Geology.
- ADAM CAPEL GILL, Ph.D., Assistant Professor of Mineralogy and Petrography.
- FREDERICK CLARK PRESCOTT, A.B., Assistant Professor of the English Language and Literature, and Secretary of the Faculty of Arts and Sciences.
- EVERETT WARD OLMSTED, Ph.D., Assistant Professor of the Romance Languages.
- WILLIAM STRUNK, Jr., A.B., Ph.D., Assistant Professor of the English Language and Literature.
- CHARLES LOVE DURHAM, M.A., Ph.D., Assistant Professor of Latin.
- EMILE MONNIN CHAMOT, Ph.D., Assistant Professor of Sanitary Chemistry and Toxicology.
- ERNEST ALBEE, A.B., Ph.D., Assistant Professor of Philosophy.
- ISAAC MADISON BENTLEY, B.S., Ph.D., Assistant Professor of Psychology.
- HEINRICH RIES, Ph.D., Assistant Professor of Economic Geology.
- HENRY AUGUSTUS SILL, Ph.D., Assistant Professor of History in charge of Ancient History.
- RALPH CHARLES HENRY CATTERALL, Ph.D., Assistant Professor of History in charge of Modern European History.
- JOHN SANDFORD SHEARER, B. S., Ph.D., Assistant Professor of Physics.
- JOHN IRWIN HUTCHINSON, A.B., Ph.D., Assistant Professor of Mathematics.
- VIRGIL SNYDER, A.M., Ph.D., Assistant Professor of Mathematics.
- CLARK SUTHERLAND NORTHUP, A.B., Ph.D., Assistant Professor of the English Language and Literature.
- ERNEST BLAKER, Ph.D., Assistant Professor of Physics.
- GUY MONTROSE WHIPPLE, Ph.D., Assistant Professor of the Science and Art of Education.
- OTHON GOEPP GUERLAC, Licencié ès Lettres, Assistant Professor of French.
- HOLLIS ELLSWORTH DANN, Assistant Professor of Music.
- JAMES ALBERT WINANS, A.M., Assistant Professor of Oratory and Debate.

- HENRY HAYDEN LANNIGAN, Instructor in Gymnastics and Assistant in Physical Examinations.
- FRANK EMIL LODEMAN, A.M., Ph.D., Instructor in the Romance Languages.
- ELIAS JUDAH DURAND, A.B., D.Sc., Instructor in Botany and Assistant Curator of the Cryptogamic Herbarium.
- ALFRED AUSTIN MOORE, A.B., Instructor in the Romance Languages.
- BLIN SILL CUSHMAN, B.S., Instructor in Chemistry.
- ELLEN BRAINARD CANFIELD, Instructor in Sage College in charge of Gymnasium.
- HECTOR RUSSELL CARVETH, A.B., Ph.D., Instructor in Physical Chemistry.
- KARL MCKAY WIEGAND, B.S., Ph.D., Instructor in Botany and Assistant Curator of the Phanerogamic Herbarium.
- EUGENE PLUMB ANDREWS, A.B., Instructor in Archaeology and Curator of the Museum of Casts.
- ALEXANDER DYER MACGILLIVRAY, Ph.D., Instructor in Entomology and General Invertebrate Zoology.
- GEORGE MAXWELL HOWE, A.B., Ph.D., Instructor in German.
- DONALD ALEXANDER MCRAE, A.B., Instructor in Greek.
- BENTON SULLIVAN MONROE, A.M., Ph.D., Instructor in English.
- ARTHUR LYNN ANDREWS, M.L., Ph.D., Instructor in English.
- WILLIAM BENJAMIN FITE, Ph.D., Instructor in Mathematics.
- WILLIAM ROSS LEE, A.M., Instructor in Elocution and Oratory.
- WILLIAM ALBERT RILEY, B.S., Ph.D., Instructor in Entomology and General Invertebrate Zoology.
- LOUIS LEAMING FORMAN, Ph.D., Instructor in Greek.
- PAUL RUSSELL POPE, A.B., Ph.D., Instructor in German.
- CHESTER MURRAY, Ph.B., Instructor in the Romance Languages.
- LANE COOPER, A.B., Ph.D., Instructor in English.
- WILLIAM COOK THRO, A.M., Ph.D., Instructor in Histology and Embryology.
- JOHN CALVIN WATSON, Ph.D., Instructor in Latin.
- HUGH DANIEL REED, B.S., Ph.D., Instructor in Systematic and Economic Vertebrate Zoology.
- FRANK ALLEN, Ph.D., Instructor in Physics.
- ARTHUR WESLEY BROWNE, M.S., Ph.D., Instructor in Chemistry.
- PAUL FREDERICK GAHR, A.B., Instructor in Physics.
- ROBERT COYNER FENNER, B.S., M.E., Instructor in Physics.

HENRY WILKES WRIGHT, A.B., Ph.D., Instructor in Philosophy.
GEORGE ROBERT OLSHAUSEN, Ph.D., Instructor in Physics.
ROBERT FRANKLIN HOXIE, Ph.B., Instructor in Political Economy.
EDWARD GODFREY COX, A.M., Instructor in English.
HARRY HAMILTON COCHRANE, B.S., Instructor in Physics.
WILLARD JAMES FISHER, A.B., Instructor in Physics.
GEORGE L. MANNING, Ph.D., Instructor in Physics.
OTIS AMSDEN GAGE, Ph.B., Instructor in Physics.
WALThER KÜCHLER, Ph.D., Instructor in German.
CHARLES NELSON HASKINS, Ph.D., Instructor in Mathematics.
WILLIAM CHAUNCEY GEER, A.B., Instructor in Chemistry.
GEORGE DAVID HUBBARD, M.S., A.M., Instructor in Geology
and Physical Geography.
GEORGE ABRAM EVERETT, A.B., LL.B., Instructor in Oratory
and Debate.
CARROLL DUNHAM PARTRIDGE, B.S., Instructor in Chemistry.
FRED CLARKSON FOWLER, Mechanician in the Department of
Physics.
EARL BLOUGH, A.B., Assistant in Chemistry.
WALTER SCHON LENK, B.S., Assistant in Chemistry.
LEE FRED HAWLEY, A.B., Assistant in Chemistry.
HERMAN CAMPBELL STEVENS, A.B., Assistant in Psychology.
CLARENCE ERROL FERREE, A.B., A.M., Assistant in Psychology.
RESTON STEVENSON, A.M., Assistant in Chemistry.
FRANCIS LUTHER WHITNEY, Assistant in Geology.
ROY STUART PATTISON, M.E., Assistant in Physics.
NEWTON DENNISON MERENESS, A.B., Ph.D., Assistant in
American History.
WILLIAM NEFF, A.B., Assistant in Political Economy and Finance.
ALBERT CHARLES MUHSE, A.M., Assistant in Political Economy
and Finance.
HERBERT SPENCER JACKSON, Assistant in Botany.
THOMAS G DELBRIDGE, A.B., Assistant in Chemistry.
OSCAR PERRY AKERS, A.B., A.M., Assistant in Mathematics.
ARCHIBALD TANNER BANNING, Jr., A.B., Assistant in Political
Economy and Statistics.
NEAL DOW BECKER, Assistant in Elocution and Oratory.
BERT S BUTLER, Assistant in Dynamic and Economic Geology.
STEWART H BURNHAM, B.S., Assistant in Botany.
HERBERT GROVE DORSEY, B.S., M.S., Assistant in Physics.
ABRAHAM ABBEY FREEDLANDER, Assistant in Modern Europe-
an History.

- THEODORE DE LEO LAGUNA, A.M., Ph.D., Assistant in Philosophy.
- CHARLES EDWARD LEWIS, A.M., Assistant in Botany.
- LAWRENCE MARTIN, A.B., Assistant in Geology.
- JOHN WASHINGTON DAVITT, Assistant in Chemistry.
- RALPH CUTHBERT SNOWDON, A.B., Assistant in Chemistry.
- ARTHUR MALCOLM BEAN, A.M., Assistant in Neurology, Vertebrate Zoology and Physiology.
- EFFIE ALBERTA READ, A.B., Assistant in Histology and Embryology.
- SAMUEL GUY WINTER, A.M., Assistant in Histology and Embryology.
- CLARENCE ALBERT PIERCE, B.S., Assistant in Physics.
- JAMES WALTER SCHADE, A.B., Assistant in Chemistry.
- CHARLES LYMAN RAND, A.B., Assistant in Chemistry.
- FRANK CROWL ROBINSON, A.B., Assistant in Chemistry.
- EGIN ANGUS GRAY, B.A., M.B., Medical Examiner at Gymnasium.
- RALPH CLAUDE WILLARD, A.B., Assistant in Ancient History.
- ANDREW CURTIS WHITE, Ph.D., Reader in Greek.

SPECIAL LECTURERS.

Besides the instruction regularly given by the resident officers of the University, a large number of lectures are delivered by non-resident lecturers on special subjects of importance. For this branch of instruction the services of eminent specialists are sought, and the number of lectures given by each lecturer varies according to the nature of the subject treated.

JULIUS CHAMBERS, Ph.B.,	<i>New York</i>
The Newspaper as a Commercial Enterprise.	
Journalism as a Field of Literary Ambition.	
J. SLOAT FASSETT, A.B.,	<i>Elmira</i>
The Situation in the Far East.	
GEORGE P. BAKER, A.B.,	<i>Cambridge, Mass</i>
London and its Theatres in Shakespeare's Time.	
ALTON B. PARKER, LL.D.,	<i>Albany</i>
The Birth of the Law.	
ANGELO DE GUBERNATIS,	<i>Rome, Italy</i>
L'Italie du Passe et l'Italie du Present.	
Cavour.	
L'Universite et son Fonctionnement.	
THE SWAMI ABHEDANANDA,	<i>New York</i>
The Vedanta Philosophy and Religion.	
C. HART MERRIAM, M.D.,	<i>Washington, D. C.</i>
Protective Coloration in Animals.	
W. K. PRENTICE, Ph.D.,	<i>Princeton, N. J.</i>
Ancient Christian Cities in Syria.	
EDUARD MEYER, Ph.D.,	<i>Berlin, Germany</i>
The Emergence of the Individual in History.	
FREDERICK WARDE,	<i>England</i>
The Oratory of Shakespeare.	
YAMEI KIN, M.D.,	<i>China</i>
The Mental Environment of the Chinese.	

REQUIREMENTS FOR ADMISSION AND GRADUATION.

The following subjects are required for admission to the course leading to the degree of Bachelor of Arts: English, History [one of the four following divisions in History: (a) American and Civil Government, (b) English, (c) Ancient, (d) Mediæval and Modern European,] Plane Geometry, Algebra, and either *A*, *B*, or *C*, as follows:

- A.* Greek and Latin.
- B.* Latin and Advanced French or Advanced German.
- C.* Advanced French, Advanced German, and Advanced Mathematics.

An alternate requirement instead of Advanced Mathematics may be offered in Physics, Chemistry, Botany, Geology, and Zoology.

Students, admitted to the College of Arts and Sciences without satisfying the specific subjects in the above groups, must make up such deficiency during the freshman year by attending the University instruction in such subjects if given. The credit thus obtained will be counted toward entrance and not toward graduation.

[For details as to subjects and methods of admission see pages 33-54.

For admission to the freshman class, communications should be addressed to the Registrar. See pages 33-54.

For admission to advanced standing from other colleges and universities, and as special students, communications should be addressed to the Registrar. See pages 33-54.

For admission to graduate work and candidacy for advanced degrees, communications should be addressed to the Dean of the University Faculty. See page 70.

Degree. The degree of Bachelor of Arts is conferred on all graduates from the College of Arts and Sciences.

General Conditions for Graduation. For graduation, 120 hours of instruction, besides military drill and physical training during the freshman year, are to be completed. In the case of students relieved from military drill and physical training, an equivalent in hours is added. All work in the college except military drill and gymnasium is elective, subject only to the limitations prescribed by each department of instruction. Students are advised, however, to lay out definite and systematic lines of study.

Thesis.

If a senior elect to write a graduating thesis, it must represent some phase of his principal line of work during the later years of his course. The subject must receive the written approval of the professor in charge of the study to which it relates, and a memorandum of the title and of such approval must be left with the Registrar not later than the fifteenth day of October. The thesis must have the character of a scholarly dissertation on the subject chosen; and if accepted it will entitle the writer to credit. The copy of the thesis presented to the Faculty shall, if accepted, become the property of the University. The merit of the thesis will be judged not only from a technical point of view, but also from the point of view of its literary workmanship. A standard form and size for theses, eight by ten and one-half inches, has been adopted.

**LIST OF COURSES OPEN TO FRESHMEN IN THE
COLLEGE OF ARTS AND SCIENCES.**

The following list comprises the courses of instruction open to election by freshmen in the College of Arts and Sciences without special permission. They may not register in any other course until the written consent of the professor in charge of the subject be presented to the Registrar:

Semitic Languages and Literatures.—Courses 1, 6, and 8.

Classical Archaeology.—Courses 2 and 3.

Greek.—Courses 1, 2, 2a, 2b, and as stated, 27 and 28.

Latin.—Courses 1, 2 and 3.

Germanic Languages.—Course 1, and under certain restrictions, courses 2a, 2b, 3, 4, 5, 7, 8, and 13.

Romance Languages.—Course 1, and under certain restrictions, courses 2, 3, 5, 7, 8, 11, 12, 13, 14, 16, and 18.

English.—Courses 1, and 21.

Philosophy.—Course 7.

History.—Courses 1, 7, and 10a.

Bibliography.—Courses 1, and 2.

Mathematics.—Courses 6, 7, 8, and 9.

Physics.—Course 2a. Course 2b, 2c, 2d [if advanced mathematics has been accepted at entrance].

Chemistry.—Courses 1 or 2. If Introductory Inorganic Chemistry has been accepted at entrance, Course 6 or 6a, or 7. If Course 1 is

taken in the first term of the Freshman year Course 6a or Course 7 may be taken in the second term.

Botany.—Courses 1, 2, 3, and 5.

Entomology and General Invertebrate Zoology.—Courses 1, 2, 3, 4, 5, and 7.

Physiology, Vertebrate Zoology, and Neurology.—Courses 1-6.

Geology.—Courses 1a, 1b, 2, 21.

Military Science.—Course 3.

Freehand Drawing.—Probably Course 1.

Juniors and seniors in good standing in the College of Arts and Sciences are allowed, upon petition, to elect studies in other Colleges which shall count towards graduation in the College of Arts and Sciences, but the sum total of hours elected cannot exceed the number required for one year's work in such Colleges, nor exceed nine hours per week in any term. No student, however, in the College of Arts and Sciences is allowed to register in the Medical College until the beginning of his senior year, but he may then devote the whole of that year to studies in the Medical College. Students admitted from a preparatory school and entitled, as a result of advanced credit or summer work, to register as seniors after two years of residence will not be allowed to avail themselves of the foregoing privilege and at the same time to receive the degree of A.B. at the end of the third year.

DEPARTMENTS OF INSTRUCTION.

[Unless otherwise indicated, each course runs through the year. Courses enclosed in brackets will not be given in 1904-5, but may be expected in 1905-6.]

SEMITIC LANGUAGES AND LITERATURES.

[The professor in charge of this department has been appointed Director of the American School of Oriental Study and Research in Jerusalem for the year 1904-1905.]

The work in this department falls under three heads.

The Languages. An elementary course in Hebrew will be given each year. The advanced work in this language is so arranged as to cover in three years the leading writers of the Old Testament and some parts of the Mishnaic and Talmudic literature. General students with linguistic interests, and those preparing to teach, are advised to begin their study of the Semitic languages with the Arabic, which will also be offered each year. Aramaic and Egyptian will alternate with Assyrian and Ethiopic. In the Semitic Seminary a part of each year will be given to epigraphical studies.

The Literatures. A course of lectures on the most important literary productions of the Semites will be given annually. *For this course a knowledge of Semitic languages is not required.* The lectures will be devoted in part to a discussion of questions of authorship, date, literary composition and historical value, and in part to a translation and elucidation of the texts themselves. Much attention will be bestowed on the Old Testament. Thus an opportunity will be afforded to students who are not familiar with the Hebrew to become acquainted with the results of scientific Bible-study. The Hebrew apocrypha and pseudepigrapha, the Mishnah and the Talmud, the Quran and the Arabic poets, the Babylonian Gilgamish epic and the Book of the Dead will be discussed in a similar manner.

The History. In a series of lectures covering four years, an outline will be presented of the political and social history of Babylonia, Assyria, Persia, India, Armenia, Syria, Arabia, Ethiopia, Egypt, and the Caliphates of Damascus, Baghdad, Egypt, North-Western Africa and Spain.

The following courses will be given in 1905-1906 :

1. **Hebrew.** Grammar (Harper, Gesenius—Kautzsch, König). Exercises in composition. Genesis. M., W., F., 2. Professor SCHMIDT.

2. **Advanced Arabic.** Grammar (Wright—DeGoeje and Arabic grammarians). Abu'l Farag and Ibn Chaldun. Composition of historical essays in modern Arabic. Study of squeezes of Arabic inscriptions. T., Th., 3, Professor SCHMIDT.

3. **Ethiopic.** Grammar (Dillmann—Bezold). The Book of Enoch. Selections from Ethiopic manuscripts. T., Th., 4. Professor SCHMIDT.

4. **Assyrian.** Grammar (Lyon, Delitzsch). Selections from Meissner's Chrestomatic, Harper's Code of Hammurabi and the Amarna Tablets. F., 4-6. Professor SCHMIDT.

5. **Coptic.** Grammar (Steindorff). Gnostic texts and inscriptions. W., 4-6. Professor SCHMIDT.

6. **Semitic Literature.** General introduction to the Old Testament and special introductions to each book. The Apostolic Fathers, and the Gnostic writings preserved in Coptic, Syriac and Greek. This course of lectures presupposes no knowledge of Oriental languages or Greek and is designed to give in brief compass the results of scientific inquiry concerning the origin, date, composition and character of the books discussed. M., W., 3. Professor SCHMIDT.

7. **Semitic Seminary.** Study of squeezes of inscriptions secured in Syria during the year 1904-1905, published Minaean, Sabaean, Safaitic and Kufic inscriptions, and Arabic geographers. M., 4-6. Professor SCHMIDT.

8. **Oriental History.** Syria from the earliest times to the present day. The lectures will be illustrated throughout with stereopticon views from photographs taken in Syria during 1904-1905. T., Th., 2. Professor SCHMIDT.

9. **Geography and Antiquities of the Semites.** Particular attention will be given to the topography of Syria. F., 3. Professor SCHMIDT.

CLASSICAL ARCHAEOLOGY AND HISTORY OF ART.

The Museum of Classical Archaeology contains a collection of casts which furnishes ample material for the illustration of the history of Greek and Roman sculptural art. The museum is also equipped with a fine collection of Greek coins, with a full set of the British museum electrotypes, with a collection of Greek vases representing

the periods of Greek ceramic art, and with various plans, models and reconstructions.

Course 3 the shorter course of lectures on Greek sculpture in the museum will give the student a knowledge of the general history of the development of Greek art, such a knowledge as will enable him to view the treasures of the larger museums of this country and of Europe intelligently. The three hour course will give more opportunity for independent investigation. This course will be attractive to all who desire a somewhat more definite and intimate acquaintance with the work of the best Greek sculptors, and to those who would value the ability to recognize the beauties, spirit, and meaning of ancient art.

The courses in Greek Archaeology and in Pausanias are planned to be of profit to those who would be glad to acquire, for a knowledge of the Greek language and literature, or of Greek history, a background of acquaintance with the Greek people in their artistic and industrial activities, or of the land, the cities and the temples of Greece. The course in Pausanias presupposes ability to read Greek prose readily. The Archæological Seminary is intended primarily for those who desire specializing work in Greek architecture and Greek epigraphy. Courses 1, 2, 4, and 5 will prepare for the examinations for the fellowships of the American School of Classical Studies in Athens. Courses 6, 7, and 8 are culture courses; they will be of value not only to students of Greek, but will enable students of English to read English literature with more understanding and pleasure.

1. **Greek Archaeology.** Lectures and readings. Mycenæan art and civilization, Greek terra cottas, coins, bronzes, gems and vases. Greek Architecture, with special reference to the buildings on the acropolis of Athens. The coins and vases in the Museum of Classical Archæology will be used as material for study. Lectures, illustrated by lantern slides. W., F., 9. *Museum of Casts.* Mr. ANDREWS.

2. **History of Greek Sculpture.** Lectures in the Museum of Casts. M., W., F., II. Mr. ANDREWS.

3. **Outline History of Greek Sculpture.** Lectures in the Museum of Casts. T., T., 10. Mr. ANDREWS.

4. **Pausanias.** A reading course in the sources of the knowledge of Greek topography, with special reference to Athenian topography. Supplemented by illustrated lectures and by readings from Thucydides, Herodotus and Xenophon. Each member of the class will be expected to own a Teubner text of Pausanias, of Thucydides, and of Herodotus. T., T., 9. *While 6.* Mr. ANDREWS.

Open to all students who have completed courses 2-5, inclusive.

5. **Archæological Seminary.** Greek epigraphy. First half-year, Greek epichoric alphabets and dialectical inscriptions. Second half-year, Attic inscriptions. The large collection of paper impressions of inscriptions will be used. M., 3-5, *White* 3a. Mr. ANDREWS.

[6. **Myths of the Epic Cycle.** The entire cycle of myths relating to events before, during, and after the Trojan war will be illustrated by lantern views of extant monuments; vase paintings, bas-reliefs, sculpture in the round, gems and coins. First half-year. W., F., 12, *White* 6. Professor STERRETT.]

Open to students who have entrance Latin.

See Greek, course 17.

[7. **Myths of the Theban and Dionysiac Cycles.** A lecture course illustrated by lantern views as in course 6. Second half-year. W., F., 12, *White* 6. Professor STERRETT.]

Open to students who have entrance Latin.

See Greek, course 18.

[8. **Art Mythology.** The origin and development of the types of the great gods. The history of gods and demi-gods as told in art and literature. With illustrations by lantern views of extant monuments. M., F., 12, *White* 6. Professor STERRETT.]

See Greek, course 19.

25. **Greek Life.** The land and the people. Home life and private antiquities. Public life and social institutions. A study of the private life of the Greek, with illustrations (by lantern views, photographs, etc.) from ancient monuments and remains. T., Th., 12, *White* 6. Professor STERRETT.

9. **History of Architecture.** First half-year: Egyptian, Greek, and Roman Architecture. Second half-year: Romanesque, Byzantine and Gothic Architecture. Three lectures per week throughout the year. T., Th., S., 9. Assistant Professor PHELPS.

10. **History of Architecture.** A brief general survey of ancient mediæval and modern architecture. One lecture per week throughout the year. M., 12. Assistant Professor PHELPS.

11. **Elements of Architecture.** The classic orders of architecture drawn and rendered in India ink and in color. Nine draughting hours per week. Mr. SHREVE.

12. **History of Art.** Lectures on Painting, Sculpture, and the Industrial Arts in mediæval and modern times. T., Th., 12. Mr.

13. **History of Art.** One lecture per week throughout the year on Tuesday afternoons at 4 o'clock. Assistant Professor BRAUNER.

This course to be given in 1904-5 and in alternate years thereafter.

14. **History of Ornament.** Two lectures per week during the second half-year. F., 12. Assistant Professor PHELPS.

15. **Drawing from the Antique.** Eighteen hours per week throughout the first term. This work is done at the college of Architecture from the collection of casts which belongs to the college. Assistant Professor BRAUNER.

16. **Drawing from the Antique.** Charcoal and pastel work in the Museum of Casts. Nine hours per week throughout the year. Assistant Professor BRAUNER.

17. **Introduction to Aesthetics.** An elementary course on the philosophy of art. Lectures, assigned readings, and examinations. M., II. *White 6.* Assistant Professor HAMMOND.

See Philosophy, course 16.

COMPARATIVE INDO-EUROPEAN PHILOLOGY.

The work in comparative philology is planned with reference to the needs: first, of the general student with linguistic interests; second, of those proposing to be teachers of language, and more especially, of the classical languages; third, of those who propose to devote themselves to the special scientific study of the Indo-European languages.

To the first-mentioned class of students, course 1 is especially adapted. For those who propose to be teachers of other than the classical languages, courses 2 and 3 are recommended in addition to course 1. The courses on Greek and Latin grammar, the course on the Greek dialects, and the Seminary work are of the first importance for prospective teachers of the classics, and for such work a preliminary study of the elements of Sanscrit is considered desirable though not absolutely essential. Attention is called to the courses offered by the English department in Gothic, in English philology, and in the history of the English language; also to the philological courses offered by the departments of Semitic languages, Germanic languages, and Romance languages.

[1. General Introduction to the Science of Language.

a. History of linguistic science, and of theories of language. The value of language in determining questions of ethnology, and history. The "Aryan hypothesis." Linguistics and archaeology. The evidence of language concerning the early civilization of Europe. M., II. *White 3B.* Professor BRISTOL.

b. The essential principles of the life and growth of language. The elements of phonetics. Classification of the Indo-European languages. Relation of the Teutonic languages to the other members of the group. W., F., II. *White 3B.* Professor BRISTOL.]

The aim of these courses is to acquaint students of ancient or modern languages with the general principles of the science of language and its history. They are open to all seniors and graduates. Either course alone or both may be elected.

2. **Comparative Grammar.** Elements of the methods of language study. The elements of phonetics. The phonology of Indo-European. Historical and comparative treatment of sounds and inflections with special reference to the Greek, Latin, and Germanic Languages. W., F., 11, *White 3B*. Professor BRISTOL.

3. **Elementary Sanskrit.** Perry's Sanskrit Primer and Lanman's Reader. The course is designed with special reference to the needs of students in classical and Germanic Philology. T., Th., at hours to be fixed after consultation. *White 3B*. Professor BRISTOL.

4. **Vedic Sanskrit.** The reading of selected hymns. Introduction to Vedic literature. Study of the Vedic period of the language and of the Vedic Religion. One meeting a week, Professor BRISTOL.

Historical Latin Grammar, see Latin course 41.

Germanic and English Philology, see German, course 15, and English course 15.

Romance Philology, see Romance languages, 6.

GREEK.

The courses of study in this department have been arranged with distinct reference to the belief that the choice of Greek as a subject of study during the first two years of the college course should not necessarily imply an intention on the part of the student to specialize in Greek.

A course in elementary Greek is provided for the benefit of students who have not taken Greek in their preparatory course, and have found it desirable to acquire at least a rudimentary knowledge of the subject, and who are willing to incur the labor incident to doing two years' work in one. The purpose of the course is to attain in one year of extraordinary effort a reading knowledge of Attic prose, and all other objects are made secondary to this.

The work of the freshman year is directed toward cultivating the ability of reading easily and at sight. Authors of the simplest style have therefore been selected—Lysias and Plato as representatives of the purest Attic type, and the *Odyssey* of Homer, of the Epic. The first term of the year will include, in connection with the reading of Lysias, a thorough review of the fundamentals of accidence and syntax, and exercises in Greek composition will be required throughout the year.

The work of the sophomore year aims at giving the student some acquaintance with the scope and meaning of Greek literature as the embodiment of Greek thought. In order to enable the student to read a larger amount of literature a course in cursory reading in easy authors is provided.

The work adapted to specializing study falls under three distinct heads :

1. The literature. Reading courses accompanied by lectures are offered, of which are given this year a junior course in Herodotus and Thucydides, a course in Aristophanes, a course in Plato, a course in Pausanias, a course in Tragedy, and a course in the rapid reading of Sophocles, Euripides, and Aeschylus. Besides these the study of some one Greek author is taken up in alternate years in the Seminary.

2. The antiquities. Course 24 treats of the entire equipment and environment of ancient Greek life, its usage and occupations, its ideas and institutions. Courses 21 and 22 are given in alternate years and give a consecutive account of Greek Literature down to the time of Justinian. Courses 27, 28, and 29 are intended to supplement the study of Epic and Tragic poetry, by which Greek art was inspired. Greek vase-painting, reliefs, etc., depict the stories told by Homer, Aeschylus, Sophocles, and Euripides, and give an archæological commentary which illustrates, enlivens, and makes still more charming both Epic and Tragic poetry. Modern poetry draws so largely on Greek mythology that these courses will be found valuable to students of modern literatures. The department of Classical Archæology offers also courses in Greek art and archæology, and in epigraphy.

3. The language. Two courses in Advanced Prose Composition will give maturer students an opportunity for its practice in the writing of Greek under the direct personal supervision of a teacher, and for instruction in special questions of syntax and style. All students who intend to become specialists in Greek are advised to take these courses, if possible, both in the junior and senior years. The Teachers' Course in Greek is also adapted to the need of undergraduates who expect to teach the classics. Lectures on Greek Grammar from a historical point of view are given in alternate years and are intended for seniors and graduates. The course in Modern Greek should be taken by all who intend to specialize in archæology, or who plan to continue their studies in Greece.

The exercises of the philological seminary are especially adapted to the needs of graduate students, and introduce the student to the original sources of information concerning the language and its his-

tory, and accustom him to methods of independent investigation in matters of textual criticism and literary interpretation. The seminary room in the library building has been equipped with a reference library of over two thousand volumes and will be used as a regular study-room and laboratory by the more advanced students.

1. **Elementary Greek.** Forman's First Greek Book. The essentials of the grammar. Simple exercises in composition. The reading of selections from the *Anabasis* of Xenophon. M., T., W., Th., F., 8, *White 3B*. Dr. FORMAN.

This course is designed for, and may be elected by all students who wish to acquire by extraordinary effort in one year, the ability to read Attic prose.

2. **Lysias, Homer, Plato.** Select orations of Lysias as illustrative of normal Attic prose. Incidental treatment of topography, history and political institutions. Readings from the *Odyssey* of Homer. Selections from the dialogues of Plato. T., Th., S., 10, *White 4*. Mr. MACRAE.

Open to Freshmen who present Greek at entrance.

2a. **Greek Composition.** The chief aim of the course is a mastery of forms. Declensions and verb-forms carefully reviewed. Attention given to vocabulary and word-formation. M., 11, *White 4*. Mr. MACRAE.

Open to those who are taking or have taken course 2.

2b. **Sight Translation.** Xenophon, *Hellenica*, Bk 1; *Lucian*, *Vera Historia*. F., 11, *White 4*. Mr. MACRAE.

Especially recommended as collateral work for those taking course 2.

3. **Lysias, Homer, Plato.** Review of Attic inflection and syntax; Greek composition; Greek history in outline. Readings in the *Odyssey*. Brief introduction to Greek philosophy. M., T., W., Th., F., 10, *White 3B*. Dr. FORMAN.

Open to Freshmen who present Greek at entrance.

4. **Plato, Protagoras. Lyric Poets, Selections.** First half-year. M., W., F., 9, *White 3B*. Professor BRISTOL.

Open to students who have passed in course 2 or 3.

5. **Euripides and Sophocles.** The *Iphigenia in Tauris* and *Oedipus Tyrannus* will be read. Each play will be illustrated by lantern views of the ancient monuments relating thereto. Introduction to the Attic drama. Second half-year. M., W., F., 9, *White 6*. Professor STERRETT.

Open to students who have passed in course 2 or 3.

6. A. **Study in Greek Constructions.** The aim of the course is to give a clear notion of the syntactic construction of the language.

The normal type of each construction will be carefully noted, and then variations and departures from type. The work will consist chiefly in collecting and classifying examples from works the student is reading or has already read. W., 8, *White* 4. Mr. MACRAE.

B. Course in Rapid Sight Translation. Lucian, *Dialogues of the Dead*; Theophrastus, *Characters*; Plutarch, *Apothegms of Kings and Great Commanders*. S., 11, *White* 4. Mr. MACRAE.

One or both may be elected as supplementary, etc.

7. **Herodotus.** Reading of book one with special reference to local history, topography and antiquities. First half-year. M., W., F., 10, *White* 6. Professor STERRETT.

Open to students who have passed in courses 2 (or 3), 4, and 5, and to those who have passed in 2 (or 3) and are taking course 4.

[8. **Demosthenes.** The Oration on the Crown, with a study of the life and work of the orator. Second half-year. M., W., F., 10, *White* 6. Professor BRISTOL.]

Open to students as stated under course 7.

9. **Thucydides.** Reading of books six and seven mainly with reference to the literary and historical questions connected with the subject matter. Second half-year. M., W., F., 10, *White* 6. Mr. MACRAE.

Open to students as stated under course 7.

[10. **Elegiac and Lyric Poetry.** First half-year the elegiac and iambic poets. Second half-year, the melic poets in Hiller's Anthologia Lyrica. T., Th., 11, *White* 6. Professor STERRETT.]

Open to seniors and graduates.

11. **The Tragedy.** Aeschylus, Agamemnon; Sophocles, Philoctetes and Ajax; Euripides, Hippolytus and Bacchae. T., Th., 11, *White* 6. Professor STERRETT.

Open to seniors and graduates.

12. **The Orations of Thucydides:** Studied (1) as a product of early Greek Oratory, (2) as an exposition, in concrete connection, of the principles of universal politics. One hour. Open to graduates. Dr. FORMAN.

13. **Aristophanes.** The Acharnians, Knights, Clouds, Wasps, Birds, Frogs. Study of the development of Greek comedy and its scenic representation. W., F., 9, *White* 5. Dr. FORMAN.

Open to seniors and graduates.

14. **Advanced Reading Course.** The aim of this course is to enable students to acquire a knowledge of the entire works of some one author, or of a particular field of literature. The following outline cycle of reading is based on the work done in previous years:

in 1904-'05 Epinician and Idyllic poetry (all of Pindar, Bacchylides, Theocritus, Bion, Moschus) will be read; in 1905-'06 all of the Iliad and as much as possible of the Odyssey will be read; in 1906-'07 tragic poetry will be read. This will include all the plays of Sophocles, three (or four) of Aeschylus, two (or one) of Euripides; twelve tragedies in all. M., 2-4, *White* 6. Professor STERRETT.

Open to graduates and only by special permission to seniors.

15. **Plato.** Reading of the Greek text of the Republic. M., W., F., 10, *White* 5a. Assistant Professor HAMMOND.

This course is intended for students of Greek Literature as well as of Greek Philosophy. The Republic will be read in its entirety, the main attention being devoted to the content.

See Philosophy, course 9.

16. **Aristotle's Ethics.** Reading of the Greek text. M., 12 (or other hour to be arranged). *White* 5a. Assistant Professor HAMMOND.

In this course the *Nicomachean Ethics* books I-IV and X will be read and interpreted. The course is intended for such students of Greek as wish to read rapidly through an Aristotelian treatise and for such students of Philosophy as wish to examine Aristotle's ethical ideas in the original.

See Philosophy, course 14.

17. **Pausanias.** A reading course in the sources of the knowledge of Greek topography, with special reference to Athenian topography. Supplemented by illustrated lectures and by readings from Thucydides, Herodotus and Xenophon. Each member of the class will be expected to own a text of Pausanias, of Thucydides and of Herodotus. T., Th., 9, *White* 6. Mr. ANDREWS. Open to all students who have completed 2-5, inclusive.

18. **New Testament Greek.** First half-year. General introduction to the canonical gospels; reading and interpretation of the Gospel according to Luke. Second half-year. Acts of the Apostles. The members of the class should be provided with Westcott and Hort's New Testament in Greek and Mathews' History of New Testament Times in Palestine. W., F., 8, *Barnes Hall Library*. Dr. A. C. WHITE.

19. **Modern Greek.** The literary language as found in Athenian newspapers, and the spoken idiom as presented in Gardner's *Practical Method of Modern Greek*. W., F., 10, *Museum of Casts*. Mr. ANDREWS. Open to all students who have completed course 1.

20. **Greek Composition.** Systematic drill by means of detached sentences, in case and prepositional usages, and in idiomatic expression. The course is designed for those who intend to teach Greek,

and for any who may wish to gain an intimate knowledge of the language on its formal and syntactic side. T., F., 8, *White* 4. Mr. MACRAE.

Open to Juniors and to Sophomores.

21. **Greek Literature.** Lectures. A history of the development of the poetical literature in connection with the political and social history of the people. W., F., 11, *White* 6. Professor STERRETT.

This course is open to all students of the University except Freshmen.

[22. **Greek Literature.** A lecture course covering the history of the prose literature of the classical period, and of the post-classical literature in general. W., F., 11, *White* 6. Professor STERRETT.]

This course is open to all students of the University except Freshmen.

[23. **Physical and Historical Geography of Greece.** The first term will be devoted to a discussion of the physical geography, the fauna and flora, the population in ancient times, the characterization of the ancient Greeks, the modern state, the modern Greeks, their lineage, and the traces of ancient Greece in the modern customs, manners, and usages. The second term will be devoted to a systematic study of the historical geography and topography. In this term the stereopticon will be used as occasion requires. T., Th., 12, *White* 6. Professor STERRETT.

This course is open to all students of the University except Freshmen.]

24. **Greek Life.** The land and the people. Home life and private antiquities. Public life and social institutions. A study of the private life of the Greeks, with illustrations (by lantern views, photographs, etc.) from ancient monuments and remains. T., Th., 12, *White* 6. Professor STERRETT.

This course is open to all students of the University except Freshmen.

26. **Greek and Roman History.** A survey of the history of the Mediterranean world from the beginnings of Greek civilization to the establishment of the Roman Empire. Lectures, text-book, and examinations. Open to all students. M., W., F., 11, *Morrill* 11. Assistant Professor SILL.

See Ancient History, course 1.

[27. **Myths of the Epic Cycle.** The entire cycle of myths relating to events before, during, and after the Trojan war will be illustrated by lantern views of extant monuments: vase-paintings, bas-reliefs, sculpture in the round, gems and coins. First half-year. W., F., 12, *White* 6. Professor STERRETT.]

Open to students who have entrance Latin.

[28. **Myths of the Theban and Dionysiac Cycles.** A lecture course illustrated by lantern views as in course 27. Second half-year. W., F., 12, *White 6*. Professor STERRETT.

Open to students who have entrance Latin.

[29. **Art Mythology.** The origin and development of the types of the great gods. The history of gods and demi-gods as told in art and literature. With illustrations by lantern views of extant monuments. M., F., 12, *White 6*. Professor STERRETT.]

Courses 28, 29, and 30 will be found valuable to students of English, French, and German, because modern poetry draws so largely on Greek Mythology.

30. **Platonism.** Lectures on the Philosophy of Plato and reading of the Dialogues. S., 11, *White 5*. Assistant Professor HAMMOND.

In the lectures of this course, Plato's philosophical system will be explained and the history of its influence on literature and culture discussed. In connection with the lectures, the following dialogues will be read in translations. *Apology*, *Crito*, *Protagoras*, *Gorgias*, *Theaetetus*, *Phaedo*, *Timaeus*, *Republic*, and parts of the *Laws*. The course is intended for students of literature as well as of philosophy.

See philosophy, course 5.

31. **History of Ancient and Mediæval Philosophy.** Lectures and text-book. T., Th., 10, *White 5a*. Assistant Professor HAMMOND.

In this course will be treated the history of philosophical ideas from the early Greek cosmogonies down to the time of the Renaissance.

See Philosophy, course 4.]

35. **Training Course for Teachers.** a. Advanced Composition. In connection with the study and reading of Xenophons *Anabasis*, S., 12, *White 3 A*. Dr. FORMAN.

b. Discussion of the subjects contained in "The Teaching of Greek in the Secondary School," which will be used as a text-book. Parts of the *Iliad* will be read with the class. T., Th., 12, *White 3 B*. Professor BRISTOL.

Open to properly qualified Seniors.

These courses, a and b, may be taken separately or together. But credit for the work required to obtain the certificate in the department of the Science of Education can be obtained only by passing in both of them.

36. **Historical Grammar of Greek.** The Greek dialects, and their relations to kindred tongues and to one another. Development and normalizing of these forms in literary use. History of the Greek Alphabets. Historical treatment of sounds and inflexions. M., W., 10, *White 3 B*. Professor BRISTOL.

Open to graduates and to properly qualified Seniors.

40. **Greek Seminary.** In 1904-'05 papers will be prepared and discussed by members of the Seminary on the more recent theories in regard to Homeric questions.

In 1905-'06 the first term will be devoted to a study of the First Book of the Iliad of Homer as an introduction to textual criticism. The second term will be devoted to a study of the Homeric dialect. In both terms papers will be prepared and discussed by the members of the Seminary. W., 2-4, and an additional hour at the pleasure of the instructor. *Seminary Room.* Professor STERRETT. Open to graduates.

LATIN.

Office hours: Professor BENNETT, M., 1-2, at residence.

Assistant Professor ELMER, M., W., 3-4; S., 2-3, at residence.

Assistant Professor DURHAM, daily, 10-11, Morrill 14.

The reading courses are as follows:

Course 1, the regular freshman reading course, open to all students who have presented Latin at entrance.

Course 8, the regular sophomore reading course, open to those who have had course 1.

Courses 16 and 17, the regular junior and senior reading courses, open to those who have had courses 1 and 8, or 1 and 11 (12).

Courses 2 and 3, intended primarily for freshmen who are taking course 1.

Courses 11 and 12, sophomore electives, intended primarily for those who are taking course 8, but open to all who have taken course 1.

Courses 4, a, b, which must be taken to make up an entrance deficiency in Cicero or Virgil.

The composition courses, the undergraduate, and the graduate lecture courses are open to students under the restrictions mentioned with each course.

Course 4c, must be taken by all students conditioned in Latin Composition at entrance, except those who are taking course 1.

1. *Livy, Book I; Cicero, De Senectute; Horace, Selections from the Odes and Epodes; Latin Writing.*

Section 1. M., W., F., 9, Morrill 3. Dr. WATSON.

Section 2. M., W., F., 10, Morrill 3. Dr. WATSON.

Section 3. M., W., F., 11, Morrill 3. Assistant Professor DURHAM.

[2. *Sight Translation: Caesar, Civil War; Plautus, Amphitruo. Courses 2 and 3 are given in alternate years.]*

3. Sight Translation: Cicero, Tusculan Disputations, Book I; Plautus, Menaechmi.

Section 1. T., 12, *Morrill 21*. Assistant Professor DURHAM.

Section 2. W., 12, *White 4*. Dr. WATSON.

Section 3. F., 12, *White 4*. Dr. WATSON.

Section 4. S., 10, *Morrill 21*. Assistant Professor DURHAM.

Especially recommended as collateral work for those who are taking course 1, but open to all students.

4a. Cicero, Selected Orations. T., Th., S., 12, first half year, *Morrill 21*. Mr. THROOP.

4b. Virgil's Aeneid, Books I-VI. T., Th., S., 12, second half year, *Morrill 21*. Mr. HARRIS.

4c. Latin Composition. M., 12, throughout the year, *Morrill 21*. Mr. THROOP.

Students who have an entrance condition in Cicero, Virgil, or Latin Composition are required to make up that deficiency by taking the corresponding part (a, b, or c) of course 4. Open, by permission, also to qualified students who do not present Latin at entrance.

8. Catullus; Virgil, Georgics; Horace's Satires and Epistles; Ovid, Selections from the Tristia, Amores, and Fasti; Phaedrus; Martial.

1. T., Th., S., 9, *Morrill 13*. Assistant Professor DURHAM.

2. T., Th., S., 10, *Morrill 3*. Dr. WATSON.

Open to students who have completed course 1.

11. Selections from Cicero's Letters; Cicero, De Oratore, Book I. W., F., 11, *Morrill 21*. Assistant Professor ELMER.

Open to students who have completed course 1.

[**12. Selections from Cicero's De Officiis; Cicero's Second Philippic.** Assistant Professor ELMER.]

Open to students who have completed course 1.

Courses 11 and 12 are given in alternate years.]

16. Selections from the Republican Literature; Plautus, two plays. Lucretius. Lectures on the History of Roman Literature. T., Th., S., 9, *Morrill 3*. Professor BENNETT.

Open to students who have completed courses 1 and 8.

[**17. The Literature and History of the Early Empire; Suetonius, Pliny the Younger, Tacitus. History of Roman Literature. Capes' Early Empire.** Professor BENNETT.]

Open to students who have completed courses 1 and 8.

Courses 16 and 17 are given in alternate years.]

21. Intermediate Course in Latin Writing. Open to students who have completed course 8. M., 11, *Morrill 21*. Assistant Professor ELMER.

22. Advanced Course in Latin Writing. For students who have completed course 21, or an equivalent elsewhere. S., II, *Morrill 21*. Assistant Professor ELMER.

26. Teachers' Training Course.

a. Study of the evidences for the pronunciation of Latin; Hidden quantities; Peculiarities of orthography; Theoretical consideration of Latin Syntax; Lectures on problems connected with the teaching of Latin in secondary schools; Practical work in Cicero. W., F., 12, *Morrill 3*. Professor BENNETT.

b. Cicero. This course is intended primarily for those prospective teachers in preparatory and high schools who desire an accurate knowledge of Cicero's orations. The Catilinarian orations will be studied carefully with reference to all the points that should be emphasized in elementary instruction. M., 12, *Morrill 3*. Assistant Professor DURHAM.

Course 26b can be taken only in connection with course 26a.

The general aim of courses 26a and 26b is to prepare students who are intending to teach to enter upon their work with confidence.

These courses are open only to students who have had courses 1 and 8, or 11 (12) and have taken or are taking course 16 or 17. Special students in Latin are also admitted.

See also under Science and Art of Education, course 7.

[**27. Roman Antiquities.** First term and until Easter recess: A systematic consideration of the constitution of the Roman family, status of women, marriage, children, education, slavery, the Roman house and its furniture, food, dress, baths, games and amusements, books, trade, travel, religion, death, burial, etc. Lectures, illustrated by lantern views, photographs, and material in the Museum of Casts. Easter recess until end of second term: The Political and Legal Antiquities of the Romans. Lectures. W., F., 12, *Morrill 3*. Professor BENNETT.

Open to students of the sophomore, junior, and senior years. See also under History and Political Science, course 3.

Course 27 alternates with course 26a and 26b.]

31. German Philological Reading. Reading of Schanz, *Geschichte der römischen Litteratur*. For juniors, seniors, and graduates. S., 12, *Morrill 14*. Assistant Professor DURHAM.

The object of the course is to familiarize students of Latin, Greek, and Comparative Philology with the style, vocabulary, and character of modern German philological investigations.

34. Cicero, in Verrem (Fourth Oration of the Actio Secunda). This course requires no prepared translation for the class-room work.

The professor in charge will himself translate the oration, with full comments on subject matter, style, difficulties, etc. The members of the class will endeavor merely to read the original Latin in such a way as to reproduce, as far as possible, the oratorical tone and force of the speech. The especial aim of this course will be to develop in students the ability to understand and appreciate the Latin without translating. Open to juniors, seniors, and graduates. Th., 11, *Morrill 3.* (The hour can be changed to suit students who have conflicts). Assistant Professor ELMER.

[35. Virgil, *Aeneid VII-XII.* Assistant Professor ELMER.]

36. Latin Pro-Seminary. Textual and exegetical study of the works of Catullus.

The primary object of the pro-seminary is to prepare students for membership in the graduate seminary. It will also serve to introduce to the principles of scientific textual criticism and interpretation students who may not be intending to take graduate courses.

Open to seniors and by special permission to juniors. M., 3, *Greek and Latin Seminary.* Assistant Professor DURHAM.

[37. Latin Pro-Seminary, Virgil. After a course of introductory lectures on the history and development of Latin epic poetry from the earliest times down to Statius, the work of the pro-seminary will be devoted to a textual and exegetical study of selected portions of Virgil. Each student will prepare a paper embodying the results of original investigation of some topic suggested by the work of the year. Open to seniors and by special permission to juniors. Assistant Professor ELMER.

For the general objects which the pro-seminary has in view, see under course 36.

Courses 36 and 37 are given in alternate years.]

38. Latin Seminary. The work of the seminary for 1904-1905 will consist of textual and exegetical study of Horace's Odes, combined with the more rapid reading of all of Horace's works.

The object of the seminary is to familiarize its members with the methods and habits of independent investigation. The work, therefore, as far as possible, is thrown into the hands of the students themselves. The seminary is open to graduates. Students who intend to take this course should confer with the instructor before Commencement, in order that the necessary books may be ordered from abroad in due season. The textual and exegetical work will come T., 2-3:30; the reading, Saturday at 10, *Greek and Latin Seminary Room.* Professor BENNETT.

[39. History, Scope, and Aim of Latin Study. This course will present the history of classical study since the Renaissance, will

outline the various fields of investigation, stating the present state of knowledge in each along with the chief problems still awaiting solution, and will give a very full bibliography. Open to graduates. Professor BENNETT.

Courses 39 and 40 are given in alternate years.]

40. **Historical Latin Syntax.** Lectures on the original force and historical development of the cases, and upon the subjunctive mood, with reference especially to its primitive meaning and its development in subordinate clauses. Open to graduates. T., Th., 10, *Greek and Latin Seminary..* Professor BENNETT.

[41. **Historical Grammar of the Latin Language.** For juniors, seniors, and graduates. Professor BENNETT.

Courses 40 and 41 are given in alternate years.]

[42. **Latin Epigraphy.** Introductory lectures and the interpretation of selected Latin inscriptions. For juniors, seniors, and graduates. Assistant Professor DURHAM.]

43. **Latin Palaeography.** An actual study of mediæval manuscripts and fac-similes in the possession of the University. Second half-year. T., 4-6. Professor BURR.

For Roman History, see under Ancient History.

THE GERMANIC LANGUAGES.

The aim of the first two courses in German, besides preparing the student for progressive and independent work is to afford those who have not a full classical training, some grammatical and linguistic discipline, an insight into the relations between German and English, and a certain degree of literary culture.

In course 1 German Grammar and Hewett's Reader are used, accompanied by exercises in writing German, and in translation at sight. Later in the year easy novels or plays are studied.

In course 2a standard German classics are read, and special attention is paid to advanced syntax and etymology, the force of prefixes and suffixes, the composition of words, synonyms and sight translation.

Course 2b is arranged for the special benefit of students of science and those who are pursuing technical courses. Easy narrative and descriptive prose is read, the object being to impart facility in translation in connection with accurate grammatical knowledge.

The later work, in the form of lectures and recitations, includes the advanced study of the German literature and language. Courses are given, varying from year to year, embracing the works of the leading authors and the literature of different periods. Classes are also formed in composition and conversation, and recent dramatic litera-

ture and the writings of living novelists are read. Systematic instruction is further provided in Gothic, Old Norse, Netherlandish, in Old and Middle High German, also in the history of the German language and in the comparative grammar of the Germanic languages.

In the German Seminary attention will be paid in successive years both to German literature and philology. The Seminary in German literature is open to students who have had the elementary courses in German and at least one full course in German literature. For the Seminary in philology, preliminary courses in Gothic and Middle High German, also in the general principles and facts of language are desirable. Investigation, the careful examination of authorities, and special reports constitute distinctive features of this work. All graduate students will participate in both these Seminaries. Later, independent research in chosen fields according to the special gifts and tastes of individual students will follow. Broad as well as accurate culture will be sought in the case of all graduate students.

Courses for those intending to be teachers are also given on classroom methods and theories of instruction in the modern languages. The department is equipped with a rare collection of lantern slides for illustrative purposes. The seminary room in the general library building has a valuable library for consultation, containing the leading collections of German literature, philological journals and books of reference. The Zarncke library, which has been recently presented to the University, contains one of the largest single collections of books for the study of German literature and philology in America, has materially enlarged the resources of the seminary and leaves little to be desired.

A series of lectures in German by eminent scholars upon German life, literature and art will be given during the year.

Consultation Hours.

Professor Hewett: Sept. 22-Oct. 1, 1904, 9-11; after Sept. 29, M., W., 11, *Morrill 13 B.*

Professor Walz: After Oct. 1, T., Th., 11. Office adjoining Room 5, *Morrill.*

Dr. Howe: Sept. 22-Oct. 1, 1904, daily 11-1; after Sept. 29, M., 11. Office adjoining Room 5, *Morrill.*

Dr. Pope: Sept. 22-Oct. 1, 1904, daily 1-3; after Oct. 1, T., 10. Office adjoining Room 5, *Morrill.*

Dr. Küchler: after Sept. 29, M., 10. Office adjoining Room 5, *Morrill.*

Course 1 is for beginners in German, and for those who have not already passed the entrance examination in Elementary German.

Course 2 is open to those who have had Course 1, or have passed the entrance examination in Elementary German. Course 2 cannot be taken by those who have passed the entrance examination in Advanced German.

Courses 3-16 are open, under the restrictions hereafter noted, to those only who have had at least the equivalent of Courses 1 and 2.

Course 1, and, under certain restrictions, Courses 2a, 2b, 3, 4, 5, 7, 8 and 13 are open to Freshmen, whose previous work qualifies them for this work.

1. Elementary Course in German. Grammar, Hewett's German Reader. The principles of German pronunciation, inflexions, rules of syntax, re-writing of easy exercises in German, and memorizing familiar poems.

Section 1—M., W., F., 9, Morrill 5. Professor WALZ.

Section 2—M., W., F., 10, Morrill 6. Dr. POPE.

Section 3—T., Th., S., 10, Morrill 13. Dr. HOWE.

Section 4—T., Th., S., 11, Morrill 13. Dr. HOWE.

Section 5—M., W., F., 12, Morrill 5. Dr. POPE.

Section 6—M., W., F., 12, Morrill 6. Mr. OSWALD.

Section 7—T., Th., S., 12, Morrill 5. Dr. POPE.

2a. Second Year. Freytag's Journalisten, Schiller's Wilhelm Tell, Goethe's Hermann und Dorothea.

Section 1—T., Th., S., 9, Morrill 5. Professor WALZ.

Section 2—T., Th., S., 10, Morrill 6. Dr. KÜCHLER.

This course is intended for students of literature and for those who intend to make an advanced study of German. It is, however, open to all properly qualified students who have had Course 1. Advanced grammar, syntax, the use of the moods in main and dependent sentences, the derivation and composition of words, the force of prefixes and suffixes, also synonyms will be studied.

2b. Second Year. Course in the rapid reading of easy narrative and descriptive prose. The object of this course is to give facility in translation and especially to aid students in their later reading of technical and scientific works. This is a parallel course to 2a for the year.

Section 1—M., W., F., 11, Morrill 13. Dr. POPE.

Section 2—M., W., F., 12, Morrill 13. Dr. HOWE.

The work of courses 1 and 2 is under the general direction of Professor Hewett; the details of administration, except for credits for admission, are in charge of Professor Walz.

3. **Elementary German Composition.** M., W., F., 12. *Morrill* 6.
 6. Dr. KÜCHLER, T., Th., S., 12, *Morrill* 6. Dr. KÜCHLER.
 Open to students who have had Course 1.
 Students are advised to take this course in connection with German 2 as a preparation for admission to advanced work.
4. **Advanced German Composition.** M., W., F., 11, *Morrill* 5.
 Second half-year. Professor WALZ. This course will be conducted in German. Open only to students who have had Courses 1-3, and to others by special permission of the Instructor. Candidates for Teachers' Certificates must have had the equivalent of Courses 3 and 4.
5. **The Historical Novel.** Selections from Freytag, C. F. Meyer, Ebers and others. M., W., F., 11. First half-year. *Morrill* 5. Professor WALZ.
6. **Lectures in German on German Literature in the Nineteenth Century.** Early and later Romanticism, the Revolutionary period, the historical and political direction, and the modern social and psychological novel and drama. Open to students who have had courses 1-4 and 7 and 11 or their equivalent. Full course. M., W., F., 11. *Morrill* 6. Dr. KÜCHLER.
7. **German Romanticism.** Lectures and readings from Heine, Uhland, Fouque and Eichendorff. A discussion of the philosophical, historical and artistic views of the early Romanticists, with a survey of the critical writings of the Schlegels, Tieck, Fichte and Schleiermacher. Open to students who have completed courses 1, 2 and 3. M., W., F., 9, *Morrill* 13. Professor HEWETT.
8. **Sight Translation.** Numerous works giving a wide acquaintance with modern writers, will be read. The aim of this will be primarily to impart facility in translation, and at the same time, familiarize the students with representative writers of the nineteenth century. Reading of German outside the class will be required, the subject of which will be announced at the opening of the term. Except by special permission, this course must be taken in connection with one full reading course. Open only to students who have completed courses 1-3 and one full reading course. M., W., 10, *Morrill* 5, T., Th., 12, *Morrill* 13. Dr. HOWE.
9. **Outline History of German Literature from the Beginning to Goethe's Death.** Lectures, readings and reports. T., Th., 9, *German Seminary*. Professor HEWETT.
- Full course for graduate and advanced students. Open also by special permission to students who have had two full reading courses in advanced German.
10. **German Land and Life.** Descriptions of German life and

scenery, legends, history and biography. This course is intended to furnish additional practice in translation, as well as advanced training in the principles of the language. It is intermediate in character between courses 2 and 7 and is recommended to students of history and to those who desire a reading knowledge of German. Open to students who have completed Courses 1 and 2. Supplementing course 5. Second half-year. T., Th., S., 11. *Morrill* 6. DR. KÜCHLER.

11. **Lessing.** Introduction to the classical literature of the eighteenth century. Lessing's life. *Nathan der Weise*, *Emilia Galotti*, *Jugenddramen*. Readings and reports on Klopstock's *Messias*, Herder's *Cid* and *Volkslieder*, and Wieland's *Oberon*. Open to students who have had the equivalent of Courses 1-4 and one full reading course in classical German. M., W., F., 10, *Morrill* 13. Professor HEWITT.

12. **Introduction to Schiller's Life and Writings.** *Maria Stuart*, *Jungfrau von Orleans*, early dramas and lyrics. This course will be illustrated by lantern views. Full course. Open to students who have had courses 1-3, or their equivalent. T., Th., S., 10, *Morrill* 5. Professor WALZ.

13. **Teacher's Course.** A general review of German grammar, historical and comparative syntax, synonyms, etymology, characteristics of German style, development of poetical forms, metre. Theories of instruction in the modern languages. First half-year. T., Th., 9, *German Seminary*. Professor HEWITT. Open to students who have had courses 1-4, 18 and two full reading courses in German literature. Courses 13 and 15 may be counted for Teacher's Certificates.

*14. **Elementary Middle High German.** The popular epics: Hartmann von Aue, Nibelungenlied and Kudrun; German prose in the twelfth and thirteenth centuries. M., W., 11, *German Seminary*. Dr. HOWE.

15. **Introduction to General Germanic Philology and Phonology.** Elementary phonetics with special reference to German pronunciation and the laws of linguistic change. The historical development of the German language. The dialects. Formation of Modern High German. This course is based on Behagel's "Die deutsche Sprache" (2nd ed.) and Geschichte der deutschen Sprache., in Paul's Grundriss, Vol. I., (2d ed.) For teachers and advanced students. For admission, students should have had at least Courses 1-5 and two full reading courses, also one course in historical German, either

* The hour of courses starred may be changed to meet the convenience of those electing the

Gothic, Old or Middle High German or Early English. In special cases it may be taken in connection with historical German. Follows Course 13. T., Th., S., 11, *Morrill 5*. Dr. POPP. This course may be counted for credit for Teachers' Certificates.

16. **German Literature from the Twelfth Century to Luther.** **Middle High German** (advanced course). Lectures and readings from Walther von der Vogelweide: the Court Epics; Gottfried von Strassburg and his relations to French sources and to the later Arthurian legends; and Wolfram von Eschenbach's *Parzival*. Full course. For graduates and advanced students. M., W., F., 10, *German Seminary*. Professor WALZ.

17a. **Goethe's Poems Studied in Relation to His Life.** Open to students who have had courses 1-3 and one full reading course in German literature.

b. **Faust, the First and Second Parts.** Lectures, recitations and reports. This course will be accompanied by lantern views illustrating the Faust legend and the influence of Goethe's drama in modern art. M., W., F., 9, *Morrill 13*. Professor HEWETT. (Omitted in 1904-5.)

18. **German Conversation.** Experimental Course. The recent Reform Method of instruction in the modern languages used in Germany will be adopted. The number of students in this course will be limited to twenty-five. Open only to students who have had courses 1-2, 3 and one full course in German literature, by special application to the instructor. This course will be especially useful to teachers. It must be taken in connection with one full reading course, and if possible, with German Composition. First half-year. T., Th., S., 11, *Morrill 6*. Dr. KÜCHLER.

19. **Old High German.** Braune's *Althochdeutsches Lesebuch*. T., Th., S., 11, *Morrill 5*. First half-year. Dr. POPP. For graduates and advanced students of German literature. Admission only upon special application.

20. **Old Saxon: The Heliand, and the minor Low German remains.** Lectures and recitations. Early German metrical forms. For graduate and advanced students. First half-year. T., Th., S., 12, *Morrill 13*. (Omitted in 1904-5.)

21. **Historical and Comparative Grammar of the Germanic Languages**, including phonology and morphology. Lectures and discussions. This course will be based on Streitberg's *Urgermanische Grammatik* (2d ed.), Kluge's *Vorgeschichte der altgermanischen Dialekte* in Paul's *Grundriss*, Bd. I, (2d ed.) For graduate and advanced students who have had Gothic, Old or Middle High German or Early English. (Omitted in 1904-5.)

22. **Old Norse.** Lectures and recitations; continuation of Course 15. For graduate and advanced students of the Germanic languages. Second half-year. T., Th., S., 12, *German Seminary*. (Omitted in 1904-5).

23. **Reading and Discussion of Current Reviews, and Criticisms of Recent Works.** S., 10, *German Seminary*. First half-year. Dr. POPE. Second half-year. Dr. KÜCHLER. (Omitted 1904-5.)

24. **Old English Philology.** For students of Germanic philology and those especially interested in comparative grammar. M., W., F. 9, *English Seminary Room*. Assistant Professor STRUNK. See English Course 15. (Omitted in 1904-5.)

25. **General Introduction to the Science of Language.** W., F. 11, *White 3B*. Professor BRISTOL. See Comparative Indo-European Philology, course 1.

Candidates for the doctor's degree in Germanics are advised to include at some time course 1 under Comparative Philology, as a part of their preparation for examination.

26. **The Deutscher Verein,** a club composed of the instructors in German, graduate students, and others especially qualified, will meet twice a month for the reading of original investigations, for discussions and reports upon recent publications in the field of German literature and philology, 8 P. M. *Trophy Room, Barnes Hall*. The Gesellschaftsabende are open to all students in the German department for social intercourse, music and German conversation.

27. **General Lectures** upon German institutions, art and life, the history of German Universities, and the works of special authors will be given before the German department by members of the Faculty and others. These will be given in the evening, at times to be announced during the year.

Candidates for Teachers' Certificates must have had Courses 1-4, 13 and 15, and the equivalent of two full courses in German literature.

THE ROMANCE LANGUAGES.

Instruction in French during the first year is essentially the same for all courses. It is expected that students in the technical courses who take but one year of French, will be enabled to read ordinary French scientific works and the French text-books which may be used in their courses. In the second year the object of study is more literary than grammatical; three hours a week are devoted to reading advanced French and to the study of the history of the literature, with special reference to its principal schools or movements.

The instruction in the department is so planned that a student who pursues French for three or four years has an opportunity to study every period in French literature from the mediæval to the modern. Special instruction is also provided for graduates and other advanced students in French philology, Old-French, and Provençal.

There are three courses offered in Spanish, an elementary course of grammar and reading the first year, followed by a course in modern Spanish literature and one in such classical authors as Cervantes, Calderon, and Lope de Vega. Either of these advanced courses may be taken the second year.

The courses in Italian are of two years. The grammar is rapidly studied the first term, and reading begun in the second. In the second year more advanced works are read; selections from Dante, Petrarch, and Boccaccio, with lectures on the history of the literature. Advanced instruction is given in Spanish and Italian philology.

The library, in which a seminary room has recently been provided, is well furnished with materials for the special study of French literature of the XVIIth century and of the Romantic School, while means are not wanting for the study of other periods, and of the other Romance literature and philology.

Course 1 is for beginners in French, and for those who have not already passed the entrance examination in Elementary French. Course 2 is open to those who have had the equivalent of course 1, or have passed the entrance examination in Elementary French. Course 3 cannot be taken by those who have passed the entrance examination in Advanced French (equivalent to the Intermediate French of the College Entrance Examination Board). Courses 3, 5, 7, 8, 12, 13, are open, under the restrictions hereafter noted, to those who have had at least the equivalent of courses 1, 2. Course 1, and under certain restrictions, courses 2, 3, 5, 7, 8, 11, 12, 13, 14, 16, 17, 18, are open to Freshmen.

i. French Grammar and Reader. Fraser and Squair's Abridged French Grammar. French Reader.

<i>Section 1—M., W., F., 9, White 13.</i>	<i>Mr. MURRAY.</i>
<i>Section 2—M., W., F., 10, White 13.</i>	<i>Dr. LODERMAN.</i>
<i>Section 3—M., W., F., 11, White 10.</i>	<i>Mr. MOORE.</i>
<i>Section 4—M., W., F., 12, White —.</i>	<i>Dr. LODERMAN.</i>
<i>Section 5—M., W., F., 12, White 13.</i>	<i>Assistant Professor GUERLAC.</i>
<i>Section 6—T., Th., S., 10, White 13.</i>	<i>Assistant Professor GUERLAC.</i>
<i>Section 7—T., Th., S., 11, White 10.</i>	<i>Mr. MOORE.</i>
<i>Section 8—T., Th., S., 12, White 10.</i>	<i>Mr. MOORE.</i>
<i>Section 9—T., Th., S., 12, White —.</i>	<i>Mr. MURRAY.</i>

2. Töpffer's *Bibliothèque de mon Oncle*, Rostand's *Romanesques*, Balzac's *Curé de Tours*.

Section 1—M., W., F., 10, *White 10*. Mr. MURRAY.

Section 2—M., W., F., 11, *White 11*. Assistant Professor OLMSTED.

Section 3—M., W., F., 12, *White 10*. Mr. MOORE.

Section 4—T., Th., S., 9, *White 13*. Dr. LODERMAN.

Section 5—T., Th., S., 10, *White 10*. Mr. MOORE.

3. French Literature of the Seventeenth Century. Prose and verse of the classic writers of the century, including readings of plays by Corneille, Racine and Molière. M., W., F., 9, *White 10*. Professor CRANE.

Open to all who have had courses 1, 2.

4. Romance Seminary. French Classical Tragedy. Corneille's Contemporaries. Jean Rotrou's Saint Genest and Venceslas. S., 10-12, *French Seminary Room*. Professor CRANE.

Open only to graduate students, and others on application.

5. Origin and Development of the French Language and Literature down to the Sixteenth Century. Lectures. S., 9, *White 10*. Professor CRANE.

Open to those who have had courses 1, 2, and Latin required for admission to the University.

7. French Language and Literature of the Sixteenth Century. T., Th., 10, *White 11*, Assistant Professor OLMSTED.

Open to those who have studied French at least three years, and who have some knowledge of Latin.

8. French Literature of the Eighteenth Century. Prose of the classic writers of the century, including Le Sage's Gil Blas, and plays by Marivaux, Beaumarchais, Voltaire, etc. T., Th., 11, *White 11*. Assistant Professor OLMSTED.

Open to those who have had courses 1, 2.

9. Rapid sight reading. Conducted in French. The object of the course is to impart facility in the reading and understanding of French as French without translating, and to acquaint the student with certain modern authors rarely studied, such as Verlaine, Huysmans, Maeterlinck, Brieux, etc. W., F., 10, *White 11*. Assistant Professor OLMSTED.

Open to those who have had courses 1, 2, or who can read French readily.

10. French Phonetics, Old-French Texts, etc. T., Th., 11, *White 3 B*. Mr. MURRAY.

Open to those who have had courses 1, 2, 3, or their equivalent, and Latin required for admission to the University.

11. French Fiction and Drama of the Nineteenth Century.

Rapid reading, lectures and reports in French. T., S., 12, *White 13.*
Assistant Professor GUERLAC.

Open to those who have had courses 1, 2.

12. **Lectures in French.** First term—French contemporary novelists, dramatists, poets and critics. Second term—French literature on the United States (Chateaubriand, Talleyrand, Tocqueville, Laboulaye, Bourget, etc.). Th., 12, *White 13.* Assistant Professor GUERLAC.

Open to those who have had courses 1, 2, 3, or their equivalent, and, in the judgment of the instructor, are capable of pursuing the course with profit.

13. **Elementary French Conversation and Composition.** T., Th., S., 11, *White 13.* Assistant Professor GUERLAC.

Open to those who have had courses 1, 2, and, in the judgment of the instructor, are capable of pursuing the course with profit.

14. **Advanced French Conversation and Composition.** M., W., F., 11, *White 13.* Assistant Professor GUERLAC.

Open to those who, in the judgment of the instructor, are capable of pursuing the course with profit.

15. ***Italian Grammar and Reading.** M., W., F., 8, *White 11.*
Mr. MURRAY.

This course cannot be taken in the same year with course 17, and is open to those who have had advanced entrance French or Latin.

16. ***Italian Reading.** Selections from Dante, Petrarch and Boccaccio. T., Th., 9, *French Seminary Room, Library.* Professor CRANE.

Open to those who have had course 15.

17. **Spanish Grammar and Reading.** M., W., F., 12, *White 11.*
Assistant Professor OLMSTED. T., Th., S., 8, *White 13.* Dr. LODERMAN.

This course cannot be taken in the same year with course 15, and is open to those who have had advanced entrance French, German, or Latin.

18. **Modern Spanish Literature.** Valdés, Galdós, Valera, Alarcón, Echegaray, Bécquer, etc. T., Th., 12, *White 11.* Assistant Professor OLMSTED.

Open to those who have had course 17.

19. ***Spanish Classics of the Sixteenth and Seventeenth Centuries.** Cervantes, Calderón, Lope de Vega. M., W., 11, *White 5.*
Dr. LODERMAN.

Open to those who have had course 17.

*The hours for the courses in Romance Languages marked with an asterisk may be changed to meet the convenience of those desiring to take them.

ENGLISH.**CONSULTATION HOURS.**

During the registration-period, September 27-29, 1904 :

Professor HART, daily, 10-12, 2-3, *Morrill 22*. Assistant Professor NORTHUP, daily, 9-10; Assistant Professor PRESCOTT, daily, 11-12; Assistant Professor STRUNK, daily, 12-1; Dr. COOPER, daily, 9-10; Dr. ANDREWS and Dr. MONROE, daily, 10-11; *White 1a*.

After September 29 :

Professor HART, T., 12-1, *Morrill 22*. Assistant Professor NORTHUP, M., 10-11; Assistant Professor STRUNK, S., 10-11; Assistant Professor PRESCOTT, S., 11-12; *White 1a*.

The aims of the Department are threefold : I. Training in composition. II. Study of the growth of the language. III. Study of the literature. In all the courses there is much reading of texts. In 1-9, the aim of the reading is chiefly rhetorical ; in 11-15, grammatical ; in 21-49, interpretative. In 21-49, essays, reports, and other exercises in composition are required.

All the Courses except 7, 15, and 37 must be continued through the college year.

Courses 9, 11, 12, 13, and at least three (including 21) of the literature courses are required of students who desire to be recommended to high-school teachershships of English.

I. Composition.

(Candidates evincing marked ability in the entrance examination in English are permitted to enter Course 2 or Course 3 without taking Course 1; also candidates marked 85 (average) by the College Entrance Board. Candidates admitted upon Regents' diplomas without examination and candidates marked between 85 and 75 (average) by the College Entrance Board may obtain the like privilege on submitting to a test in writing, upon familiar topics, some of which will be connected with the entrance-books. This test, held Monday, September 26, 1904, 11 a.m., in the Library Lecture Room, and lasting about an hour, will not be treated as a University examination ; no report will be made to the Registrar. For all classes of candidates the chief criterion will be facility in sentence- and paragraph-structure.

A list of the successful candidates will be posted before Registration Day.)

1. **English Composition.** Open to all students who have fulfilled the entrance requirement in English in the College of Arts and

Sciences. Studies in the technique of narrative, descriptive, and expository writing, with regular practice in composition. A number of illustrative specimens, selected from the best works of the masters of style will be read by the class, and will serve, so far as is practicable, as models for the themes and essays to be written in the course of the year. Constant use will be made of Hart's Essentials of Prose Composition. Three hours.

The class will recite in six sections, as follows :

Section a. M., W., F., 12. *White 1b.* Dr. MONROE.

Section b. T., Th., S., 9. *White 2.* Dr. COOPER.

Section c. M., W., F., 10. *White 1b.* Mr. COX.

Section d. M., W., F., 11. *White 4.* Dr. ANDREWS.

Section e. M., W., F., 2. *White 2.* Dr. COOPER.

Section f. T., Th., 2; S., 12. *White 2.* Mr. COX.

The work of the course is under the general direction of Professor HART; the details of administration are in charge of Assistant Professor NORTHUP.

2. **Theme-Writing.** Counts as three hours. Open to students who, having passed in Course 1, desire further training, especially in the technique of writing. Short daily themes, longer themes, conferences at hours to be arranged; one lecture a week, T., 12 or W., 12. *White 2*; or Th., 11, *White 9*. Assistant Professor PRESCOTT (in charge), Dr. MONROE, Dr. ANDREWS, Dr. COOPER, and Mr. COX.

3. **Advanced Composition.** Counts as three hours. Open to students who have attained a good rank in Course 1, and who, in connection with other literary studies, are desirous of practice in treating literary topics. The writing in this course will consist of papers of moderate length, biographical, descriptive, and critical, based upon the student's reading in English literature or in other literatures if desired. The amount of writing will be practically the same as that required in Course 2 or in the former Course 3. The class will be divided into two sections, each section meeting the instructor once a week; there will be personal conferences at regular intervals. Th., 12, *White 1b.* Assistant Professor STRUNK. M., 12, *White 2.* Assistant Professor NORTHUP.

7. **The Short Story.** The study of selected specimens, with frequent exercises in story-writing. For students wishing further practice in narration and description. Open (except by special permission) only to students who have had Course 3. Two hours a week during the second term. T., Th., 9. Room to be announced hereafter. Dr. ANDREWS.

9. Teachers' Training Course. Primarily for the training of high-school teachers of English, but serviceable to the general student. The work is partly literary, partly rhetorical. On the literary side, a general survey of English and American literature, in connection with the study of the books prescribed for admission to college; on the rhetorical side, a review of the general principles of composition, with practice in writing and correcting papers.

Open to students who have maintained good rank in 1, 3 (2 in exceptional cases only), and 21. Good rank in 9 will entitle the student to count these hours towards the number requisite for a certificate in the Department of the Science of Education. M., W., F., 9, *Morrill* 22. Professor HART.

II. Language.

(Courses 11, 12, 13 constitute a series of studies in the history and present state of the language; all three are required of students who wish to be recommended to high-school teacherships of English. In each course there is enough text-reading to illustrate the periods of literature. Courses 11 and 12 are required for further study of the literature anterior to the Elizabethan period. Course 11 is recommended in preparation for 15; it is also serviceable for the general student of languages.)

11. Old and Middle English. Open to students in Arts who have had Course 1; to others, by special permission. Readings and lectures. M., W., F., 11, *White* 1b. Dr. MONROE.

12. Chaucer and Late Middle English. Open to students who have had Course 11. Readings in Chaucer and in Skeat's Specimens of English Literature; lectures on the rise of Standard English and the influences which affected the language. T., Th., S., 10, *White* 18. Assistant Professor NORTHUP.

13. Modern English. Open to students who have had Courses 11 and 12. Historical English syntax, with a review of grammatical forms. Lectures and practical exercises. T., Th., S., 9, *White* 1b. Assistant Professor NORTHUP.

[**15. Old English Philology.** For students engaged in the systematic study of the language. A knowledge of German is required for admission; some knowledge of Greek and Latin is also desirable. Students are also advised to take Course 11 in preparation. The phonology and inflections, first of Gothic, and then of Old English. Text-books, Wright, Gothic Primer; Bright, Anglo-Saxon Reader. Lectures on general Germanic philology. M., W., F., 9, *English Seminary Room*. Assistant Professor STRUNK.]

Note.—Students in Indo-European or in Germanic philology may withdraw at the completion of the Gothic portion of the course.

Not given in 1904-5.]

III. Literature.

21. **Introductory.** An elementary survey of English literature; readings and lectures. Open to all students who have fulfilled the entrance requirement in English in the College of Arts and Sciences.

Section a. T., Th., 10, *White 2.* Assistant Professor STRUNK (in charge.)

Section b. T., Th., 11, *White 2.* Assistant Professor NORTHUP.

Section c. T., Th., 12, *White 1b.* Assistant Professor PRESCOTT.

Special Announcements.

In general the courses above 21 are open, with the permission of the instructor in charge, to students who have had 21 or its equivalent.

More than two courses may not be taken in the same year, except by permission of the head of the department.

22a. **Early English Literature.** Lectures on the principal writers before Chaucer, with readings in translations; collateral reading also required. T., Th., 11, *White 4.* Dr. MONROE.

This course aims to give an insight into the form, extent, content, and spirit of Old and Middle English literature. It is intended primarily for students not specializing in English; it may not therefore be substituted for courses 11-15, though it may serviceably supplement those courses. A technical knowledge of the early language is not required.

22b. **English Translations of Greek and Latin Classics.** Counts as two hours. Open to students who have attained good rank in Course 2 or Course 3; Course 21 is not required. Rapid reading in the best of the more accessible translations; with emphasis upon Greek masterpieces. A fundamental course in English; designed, though not exclusively, for such as cannot appreciate the originals. Papers and discussions. Th., 11, *White 1b.* Dr. COOPER.

33. **English Literature, latter half of the Eighteenth Century,** from the publication of Pamela to the publication of the Lyrical Ballads. Lectures, readings, and reports. T., Th., S., 10. *White 1b.* Dr. ANDREWS.

34. **The Age of Wordsworth.** A study of the lives and writings of Wordsworth, Coleridge, De Quincey, and some of their contemporaries. Lectures, readings, and papers. M., W., F., 9. *White 1b.* Dr. COOPER.

35. The English Essay. Readings illustrative of the growth of the essay from Bacon to Macaulay. Lectures and reports. Open to students who are taking one of the courses 23-49. S., II. *White 4.* Dr. MONROE.

36. Victorian Literature. From the death of Scott in 1832 to the death of Tennyson in 1892. Lectures, readings, reports, and discussions. M., W., F., 9, *White 2.* Assistant Professor NORTHUP.

37a. Shakespeare. A survey of his life and work, with reading in class of six representative plays. First term, M., W., F., 10, *White 1b.* Assistant Professor STRUNK.

Note.—This course may be elected independently of 37b.

37b. Poetry and Prose, Spenser to Milton. A study of the principal writers from 1579 to 1660, exclusive of the dramatists. Lectures and readings. Second term, M., W., F., 10, *White 1b.* Assistant Professor STRUNK.

Note.—This course may be elected independently of 37a.

38. English Literature from the Restoration to the Death of Pope. Lectures and readings. M., W., F., 10, *White 2.* Assistant Professor PRESCOTT.

48. American Literature of the Nineteenth Century. Lectures and readings. M., W., II, *White 2.* Assistant Professor PRESCOTT.

49. English Literature of the Fourteenth Century. Readings, chiefly in Langland (*Piers Plowman*), Chaucer, Gower, with lectures. Open to students who have had Courses 11 and 21. M., W., F., 10, *Morrill 22.* Professor HART.

IV. Graduate Study.

The several members of the Department will supervise research work, literary or linguistic, offered as a major or a minor subject for an advanced degree.

As a minimum of undergraduate preparation, three of the Courses 21-49, or their equivalent, are required for literary research; Courses 11 and 15, or their equivalent, for linguistic research.

Hours will be arranged upon consultation.

Philology. Professor HART will conduct a seminary in the history of the English language. Intending members must have had Course 15 or its equivalent. The grammars of Sievers and Bülbring and Kluge's *Geschichte der englischen Sprache* will be studied in connection with Dieter's *Laut- und Formenlehre*.

Assistant Professor STRUNK will read Beowulf and Elene, with literary, linguistic, and metrical discussions.

Assistant Professor NORTHUP and Dr. MONROE will supervise the study of Middle English texts.

Literature. The several professors and instructors will supervise the study of authors and topics connected with the periods treated in the undergraduate courses announced above. Mr. ADAMS, Fellow in English, will supervise the study of the earlier drama.

V. Prizes.

For the Guilford, Shakespeare, and Browning prizes see the University pamphlet on Prizes: Regulations and Conditions Governing Prize Competitions. Copies may be obtained of the Registrar.

The topics for the Browning competition in 1904-5 are: Browning's Natural Science; Browning as a Portrayer of the Spirit of the Renaissance; Browning's Relation to the Greek Drama.

ORATORY.

Office of the Department, White Hall, 16a.

The instruction of the department embraces the philosophy and art of speech, the historical development of oratory and its influence upon human affairs, the writing and delivery of formal addresses, and the theory and practice of brief-writing and logical debate.

The essentials of good speaking are taught in nine elective courses, two elementary and seven advanced, so planned as to afford a knowledge of the principles and opportunity to apply these principles under the direction of instructors.

The elementary courses are the courses in public speaking. Their aim is to give the student a practical training in the technique of speech which will fit him to pursue the advanced courses in extempore speaking, debate and oratory, and prepare him as a speaker and thinker for public and professional life.

Those who elect the courses are divided into sections and the class exercises are conducted by the Professor of Oratory, and two instructors. The work of the class room is supplemented and further applied by the assistants in the department, who meet the students of the several sections by appointment.

Principles of thought and expression are established inductively, and applied by the student in connection with original speeches. The system teaches that there can be no right speaking without right thinking, and that the way to secure right thinking is to enlarge the

powers of observation, memory, and reason. The student is assisted to see and feel the full value of mental concepts, images and associated ideas, and to give expression to these as nature prompts. Stress is laid on originality in the interpretation of thought and emotion, complete assimilation, expression determined by the thought, not by the form of the sentences, rational gestures prompted by impulse, and a vocal culture that carries on voice-building and mind-training simultaneously. No imitation is permitted, and little of dogmatic or "elocutionary" theory finds a foothold. The purpose is to train, not public readers and elocutionists, but public speakers,—to start the young speaker on a course that will enable him to speak with composure, dignity and grace, and to satisfy the various demands of public life.

In the second half year, twelve speakers selected from the students pursuing the courses in public speaking contest for the prize founded by the class of 1886,—the '86 Memorial Prize in declamation.

The advanced courses in oratory give an acquaintance with the masters and masterpieces of the oratorical art and aim to develop on the part of the student such an appreciation of true rhetorical style that his writing may be more vigorous and better adapted to public delivery. The courses comprise lectures on the structure of orations and on oral discourse, the study of famous speeches, and the writing and speaking of orations. At the beginning of the year a limited field for research is determined upon by each student and all orations written by him during the year are based upon the result of this research. The productions are read and criticised with the writers and then delivered before the class and the public.

In the second half year there is a public contest in original oratory for the prize founded by the Hon. Stewart L. Woodford. Seniors may compete for a place in this contest according to conditions elsewhere described.

The courses in brief-writing, debate and extempore speaking are designed to ground the student in the principles of analysis, evidence and persuasion, and to give practice in the fields of argumentation and original public speaking, according to a carefully-planned system and under the eye of an instructor who offers daily criticism and suggestions.

Near the close of the first half year there is held a public contest in debate for the memorial prize founded by the class of 1894. Not more than eight contestants are chosen to compete for this prize according to conditions elsewhere described.

The prizes of the department are not restricted to any college or colleges in the University.

The following courses are offered for 1904-1905.

1. **Public Speaking.** First half-year. An elementary course prescribed for admission to all the other courses of the department. A practical training in public speech, with especial emphasis laid on analysis. Open to juniors who have pursued one or more courses in the department of English, and to sophomores whose record in English of freshman year is of a high grade and who purpose specializing in the department of oratory during junior and senior years. Also open to students in the College of Law who are not deficient in the English prescribed for admission to the college. M., W., F., II, 12; T., Th., S., 10, *White* 16. Assistant Professor WINANS, and Mr. EVERETT.

Supplementary to this course and that which follows, Oratory 1a, personal instruction will be given, by appointment, throughout the year. Messrs. EVERETT, LEE and BECKER.

The '86 Memorial Prize in declamation is awarded annually in connection with the courses in public speaking, the first competition being held at the end of the first half-year. For conditions governing this prize, see University Register.

1a. **Public Speaking.** Second half-year. Open only to those who have pursued course 1, and prescribed for admission to other courses of the department named below. Thorough application of the principles of speech studied in the foregoing course. Weekly speaking exercises; each exercise preceded by a written report following "How to study a declamation," and by personal instruction from one of the teachers of the department. M., W., F., II, 12; T., Th., S., 8, *White* 16. Assistant Professor WINANS, and Mr. EVERETT.

2. **Reading.** Technique of delivery. Interpretation of selected passages of prose and poetry. Individual drill. Strictly limited to fifteen members who have done creditable work in 1 and 1a. S., 9. Assistant Professor WINANS.

3. **Brief-Writing and Debate.** The preparation of debates. Lectures and brief-writing. First half-year. Open in order of merit to a limited number of students who have passed English 6 and have pursued with distinction the courses in public speaking; and also to a limited number of especially qualified students in the College of Law who have passed Oratory 1 and 1a with distinction. Two hours. S., II-I, *White* 16. Assistant Professor WINANS and Mr. LEE.

In the field of extemporaneous debate the University offers the '94 Memorial Prize, for conditions governing which see University Register.

3a. **Oral Debate, elementary.** Second half-year. The principles of argumentation applied to the oral discussion of questions of present interest. Weekly debates preceded by briefs. Open only to those who have passed courses 1, 1a, and 3. Two hours. S., 11-1, *White 16*. Assistant Professor WINANS and Mr. LEE.

[3b. **Oral Debate, advanced.** First half-year. A half-course ending December 1. Open to those who have maintained a high standard of excellence in the two preceding courses in debate and who wish to enter the competitions for the '94 Memorial Prize. Credit, 1 hour first term. S., 9-11, *White 16*.]

4. **Extempore Speaking, elementary.** First half-year. Weekly addresses thoroughly outlined and mastered. Exercises based upon assigned topics in the fields of American history and politics. Study of vocabulary and lectures on methods and systematic treatment. Open in order of merit, to a limited number of students who have pursued Oratory 1 and 1a with distinction. Two sections. Two hours. M., 4-6; T., 4-6, or other hours to be determined upon later. *White 16*. Assistant Professor WINANS and Mr. EVERETT.

4a. **Extempore Speaking, advanced.** Second half-year. Only those who have shown special proficiency in course 4 will be admitted to the advanced work. Weekly speaking exercises. Formal addresses. One section. Two hours until Easter. Credit, one hour. M., 4-6, *White 16*. Assistant Professor WINANS.

5. **Formal Oratory.** The writing and delivery of orations ; theory and practice. First half-year. Exercise in writing orations, speeches and addresses. Each production read and criticized with the author. Public delivery of orations monthly. Open to students who have passed English 1 and 2, and have pursued with credit Oratory 1 and 1a. This course will afford special training for those who wish to write orations in competition for the Woodford Prize in oratory. For conditions governing this prize see University Register. Two hours. T., Th., 12. Assistant Professor WINANS.

[6. **The Masters and Masterpieces of Oratory.** Second half-year. Lectures and readings. Open to any student who has passed Course 1. Two hours. T., Th., 12.]

PHILOSOPHY.

The Department of Philosophy is known as "THE SUSAN LINN SAGE SCHOOL OF PHILOSOPHY." This school owes its existence to the generosity of the late Henry W. Sage, Chairman of the Board of Trustees from 1875 to 1897. At a meeting of the Board held Oct. 22,

1890, Mr. Sage signified his intention of adding to the endowment of the Susan Linn Sage philosophical professorship, which he had established in 1886 in memory of his wife, a further gift of \$200,000 to the Department of Philosophy. His object was to provide permanently at Cornell University for philosophical instruction and investigation of the most varied kind and of the highest order. To that end he stipulated that the Trustees should, whenever it was needed, supplement the proceeds of his endowments with appropriations from the general funds of the University. The gift was made and the legislation went into effect in September 1891.

There are ten members of the instructing corps ; a professor of the history and philosophy of religion, a professor of logic and metaphysics, a professor of psychology, a professor of moral philosophy, an assistant professor of ancient and mediæval philosophy, an assistant professor, an instructor, and an assistant in philosophy, an assistant professor and two assistants in psychology. Thus all sides of philosophy are represented in the courses of instruction. Furthermore, every method of discovering truth—observation, experiment, historical investigation, reflection, and speculation—is employed within its appropriate domain.

The endowments of the School of Philosophy enable it to secure besides this large faculty of specialists, whatever material facilities they require for the successful prosecution of philosophical studies and research. There is already a full equipment in some of the most important lines, and additions will be continually made as required. All the philosophical journals published, both at home and abroad, are received. The library is also well supplied with philosophical works ; and books not on hand are ordered when needed. In the library building there is a large seminary room set apart for the exclusive use of advanced students in philosophy. This room contains complete sets of the more important philosophical journals, American, English, French, and German, and a carefully selected collection (which is being constantly enlarged) of books necessary for special study and independent research. Another room in the library building has been assigned to the school as an editorial room for "The Philosophical Review."

The Psychological Laboratory (Morrill Hall) consists of a suite of ten rooms, occupying a space of approximately 140 x 45 feet. Seven rooms are supplied with the direct current from the University circuit, five have gas, and three water. Every room is connected with every other by an elaborate system of telegraph wires, so that two or more rooms can be employed in a single investigation. Two rooms are de-

voted to work in psychological optics (one of them a dark room, 18x 24 feet); and one each to acoustics, haptics, investigations into taste and smell, and chronometrical registration. A large lecture-room is used for experimental drill-work and demonstration. There are further a work-shop and storeroom, a small room for special research work, and an office and seminary. The laboratory is especially rich in acoustical and haptic apparatus, while it is adequately supplied with the instruments necessary in other lines of investigation. The equipment is undergoing continued improvement, and apparatus needed for thesis work is at once procured. A skilled mechanician is in the service of the Department.

The Philosophical Review, now in its thirteenth year, marks another function of the School, namely, the publishing of the results of investigation. It appears once in two months, each number containing from 112 to 128 pages. A large part of the material of the *Review* is contributed by the professors, fellows and graduates in the Sage School of Philosophy. It is found that the *Review*, which stands thus in the closest connection with the School, is an effective stimulus to students, whose constant intercourse with the members of the staff engaged in writing and planning for it, enables them to keep abreast of current philosophical problems and discussions. The *Review* also furnishes advanced students with a ready medium of publication. The results of original investigations which have been accepted for doctor's degrees are, in some cases, published in it.

With the *Review* for publishing and a large faculty of specialists for investigating, the School lays great stress upon original research and inquiry. While much of the instruction is intended for undergraduates, the larger part of it is adapted to the needs of graduates of this and other institutions who are preparing themselves for positions as teachers, professors, etc. A student who has made a special study of philosophy during his junior and senior years, may still take a graduate course of three years' work in psychology, or metaphysics, or ethics, or in any other single philosophical discipline as his major subject. And for the encouragement of higher studies and research in every branch represented by the School of Philosophy there have been established for award to distinguished graduates of this and other Universities, six scholarships of the annual value of \$300 each, and three fellowships of the annual value of \$500 each, both scholarships and fellowships being tenable for one year, but subject to renewal in exceptional cases. (A full account of these scholarships and fellowships will be found on page 66). The instruction of these advanced students is carried on in the seminaries and laboratory, where the

students are fellow-workers with their teachers, who seek to guide them, partly by direct suggestion, and partly by precedent and example. It is believed, too, that students will receive much instruction, as well as enjoyment and benefit, from the close personal intercourse which it is an object to the School to cultivate between graduates and the members of the philosophical faculty. Students taking the graduate courses are in this way very effectively trained for the work of teaching ; and it may be mentioned that most of the men who have completed their courses, have received appointments as instructors or professors of philosophy in different parts of the country.

Bracketed courses are not given in 1903-1904.

The courses in philosophy are designed for sophomores, juniors, seniors and graduates.

Psychological courses will be found under the numbers 1, 2, 2a, 2b, 18, 20, 21, 22, 40; courses in *Logic* and *Metaphysics*, under numbers 1, 24, 26, 26a; courses in *Ethics* under numbers 1, 6, 6a, 7, 14, 28, 29, 30, 43; courses in *Aesthetics* under the numbers 2, 16, 22; courses in the *History of Philosophy* under numbers 3, 4, 5, 9, 10, 11, 12, 12a, 14, 15, 24, 25, 26, 27, 30, 31, 32, 33, 34, 41, 42; courses in the *History and Philosophy of Religion* under numbers 8, 35, 44; *Reading Courses* under numbers 9, 14, 18, 19.

CONSULTATION HOURS.

Professor TYLER, T., 12 (till Thanksgiving recess), *White* 9. Professor CREIGHTON, M., W., F., 11, *White* 5. Professor TITCHENER, until Christmas, T., Th., S., 12; after Christmas, M., W., F., 3, *Psychological Seminary Room*, *Morrill* 16. Professor McGILVARY, W., F., 10, *White* 9. Professor HAMMOND, M., W., 11, *White* 7, and at residence daily, 1.45-2.30. Professor ALBEE, M., 12, *White* 5a. Mr. WRIGHT, F., 1, *Boardman C.* Professor BENTLEY, M., W., F., 4, *Morrill* 7.

The following courses may be begun in the second term of the year : 2, 2a, 2b, 3, 11, 18, 21, 22.

I. Course Primarily for Sophomores.

i. **Introduction to Philosophy: Psychology, Logic, Ethics.** T., Th., S., 11. Psychology, until Christmas, *Psychological Laboratory Lecture Room*. Professor TITCHENER. Logic, until Easter, *Library Lecture Room*. Professor CREIGHTON. Ethics, after Easter, *Library Lecture Room*. Professor McGILVARY.

Note.—Although Course 1 constitutes a single course, and must be taken as a whole, separate reports are made upon the three subjects treated, the credit being allowed as follows : Psychology, 2 hours first term ; Logic, 1 hour for each term ; Ethics, 2 hours second term.

This course is intended as a general introduction to the study of Philosophy through its central disciplines. The course or its equivalent is required of all those who propose to take work in Philosophy during their Junior or Senior year.

During the first third of the year, the class meets for lectures on Psychology by Professor Titchener, whose aim is at once to give an outline of what is established in the subject, and to remove obstacles from the path of beginners in mental science. The topics of sensation, affection, and attention are discussed in detail, and some time is devoted to the psychology of the abnormal (dreaming, hypnosis, and insanity) and to comparative psychology. The course concludes with lectures on the more complex mental processes, emotion, action, and association. Students who intend to enter upon this course are advised to take work in Physiology during their Freshman year. The lectures are supplemented throughout by experimental demonstrations, and Titchener's *Outline of Psychology* is used as a text-book in the course. (For continuation of the work in psychology, see *Notes under Courses 2 and 2a below.*)

On the completion of this course at Christmas, Logic is taken up during the second part of the year. The lectures will present in an elementary way what is known regarding the general character of the thinking process and the methods by which thought actually proceeds to solve the problems presented to it. A considerable amount of attention will also be given to the analysis of logical arguments and the detection of fallacies, and for this purpose recitations in sections will be substituted for the Saturday lecture. Creighton's *Introductory Logic* will be used as a text-book.

After the Easter recess Professor McGilvary will give a series of lectures on Ethics, the object of which will be to bring out the distinctive features of moral action and to secure an insight into the leading principles underlying it.

II. Courses Primarily for Juniors and Seniors.

2. **Experimental Psychology.** Laboratory work with occasional lectures. M., W., F., 3, *Psychological Laboratory*. Professor TITCHENER, Assistant Professor BENTLEY, Mr. STEVENS, and Mr. FERREE.

The course falls into two parts. (1) For the first half of the year,

the student's attention is devoted to the qualitative experiments upon sensation, affection, attention, action, perception and idea, and the association of ideas, outlined in Titchener's *Experimental Psychology*, Pt. I. The lectures supplement the laboratory work, on the side of systematic psychology. (2) In the second half of the year, lectures are given, with demonstrations, on the chief psychological measurement methods. The laboratory work is quantitative: verification of Weber's law in the various sense-departments, determination of stimulus limens, measurement of memory and attention, the psychophysics of volitional and selective action (compound reaction experiments), etc.

The object of the course is to familiarize the student with the elementary mental processes and the laws of their connection, and to accustom him to the handling of instruments of precision. The course is complete in itself, and may therefore be taken by those who desire to go farther than Course 1, but have no wish to make a special study of psychology. It will naturally be useful also to those who intend to graduate with a psychological thesis, as a preliminary to the systematic work of Course 20.

Note.—Students in their second year who have taken the psychological portion of Course 1, may enter this course in the second term for 1, 2, or 3 hours, while they are completing the Sophomore course in Logic and Ethics.

2a. General Psychology. T., Th., 9. Assistant Professor BENTLEY.

The lectures of this course will run parallel with the laboratory work of Course 2. The course, like Course 2, is complete in itself; it will, however, be found a useful preparation for the systematic work of Course 20. It will cover the whole field of psychology, including the study of abnormal conditions (dreams, hypnosis, insanity, etc.). It will also pay attention to the problems of social and comparative psychology.

Note.—The lectures will be so arranged that students in their second year, who have taken the psychological portion of Course 1, may enter this course at the beginning of the second semester.

2b. Supplementary Study in General Psychology. S., 9 (or other hour, to be arranged.) Assistant Professor BENTLEY.

The work will include discussion of collateral readings assigned in Course 2a, reports on current literature, and informal criticism of psychological systems.

3. History of Philosophy. Lectures, Prescribed reading, and occasional essays. M., W., F., 10, *White* 5. Professor CREIGHTON.

This is an elementary course, and is intended primarily for the gen-

eral student who wishes to know something of the history of thought, and the influence which philosophical ideas have exerted in the development of civilization. The lectures will give a general account of the history of philosophical speculation from its origin among the Greeks to the present time. An attempt will be made to present the various philosophical systems in their relation to the science and general civilization of the ages to which they belong, and to estimate their social and political significance. After a rapid survey of philosophy during the Greek, Roman, and Mediæval periods, the greater part of the year will be devoted to the theories and problems of modern times. It is proposed to give a considerable amount of time during the latter part of the course to a study of the speculative problems of the present century, and especially to an examination of the philosophical meaning and importance of the notion of Evolution or Development. Reading will be assigned from time to time, but there will be no class text-book.

4. **History of Ancient and Mediæval Philosophy.** Lectures and text-book. T., Th., 10, *White 5a*. Assistant Professor HAMMOND.

In this course will be treated the history of philosophical ideas from the early Greek cosmogonies down to the time of the Renaissance. The conditions under which occidental philosophy was developed and fostered from its beginnings in Greek literature, and the relations of those conditions to oriental influence, will form the subject of the introductory lectures. It will be the aim of the course to discuss the various systems and fragments of systems from Thales to the Neo-Platonists, and also the later influences of these systems in Rome, more particularly the ethical systems of Epicureanism and Stoicism. The course will then deal with the various movements of speculative thought in the Middle Ages. These philosophical ideas will be discussed in connection with the contemporaneous conditions of science and culture, and as the historical antecedents of modern intellectual life. Windelband's *History of Ancient Philosophy* (published by Charles Scribner's Sons, New York) will be used as a text-book.

5. **Platonism.** Lectures on the Philosophy of Plato and reading on the Dialogues. S., 11. *White 5*. Assistant Professor HAMMOND.

In the lectures of this course, Plato's philosophical system will be explained and the history of its influence on literature and culture discussed. In connection with the lectures, the following dialogues will be read: *Apology*, *Crito*, *Protagoras*, *Gorgias*, *Phædo*, *Republic*, and parts of the *Laws*. The course is intended for students of literature as well as of philosophy.

6. General Ethics. Lectures and discussions. W., F., 9. *White*
9. Professor McGILVARY.

The main problems of Ethics will be studied, chiefly with reference to their bearings on life. The more important sociological data will be presented, the psychology of the moral consciousness will be studied, and the question of the relation of the individual to society will be discussed. This will involve an inquiry into the meaning of freedom and of moral responsibility, into the possibility of the reign of law in conduct, into the relation between tradition and individual initiative, and into the significance of human institutions for the moral life. In the light of the results thus obtained, the historic conceptions of duties and virtues will be critically examined, and finally the important practical problems of the moral life of the present will be investigated. Students in this course are advised to take Course 6a along with it.

6a. History of Morality. Lectures. M., 9. *White* 9. Professor McGILVARY.

This course will present in outline the history of moral practice in primitive, ancient, mediæval and modern times. Especial emphasis will be laid on moral customs divergent from those now current among civilized peoples, in order to show how moral ideas vary according to the conditions of life. An attempt will be made to show the close interrelation between economic, political and social circumstances on the one hand, and morality on the other. No acquaintance with ethical theories is presupposed, and the course will be open to all regular students of the University, who have taken or are taking Course 1. Students taking this course will find it profitable to take along with it Course 6, which gives the theory dealing with the facts presented in this course,

7. Applied Ethics. Lectures. Two hours till Thanksgiving recess, to count as one hour for the whole term. T., W., 12. *White* 9. Professor TYLER.

In the early part of the course, the lectures will be devoted to a discussion of the practical value of the ethical ideas given by Sociology, Utilitarianism, Aestheticism, Optimism, and Culture. The individualistic applications of these ideals will then be considered, and the personal virtues—right use of the intellect, control of the passions, truthfulness, honor—will be discussed. The second part of the course will treat of the bearing of moral standards upon Social Relations, the Duties of Friendship, Riches and Poverty, Public Opinion, University Life, the Theatre, the Press, Incivism, and kindred topics. The lectures will keep in view the mutual bearings of practical ethics and Christian civilization.

[8. **History of Religions.** This course will not be given in 1904-1905.]

9. **The Republic of Plato.** Reading of the Greek text. T., Th., S., 9. *White 5a.* Assistant Professor HAMMOND.

This course is intended for students of Greek Literature as well as of Greek Philosophy. The Republic will be read in its entirety, the main attention being devoted to the content. The text used will be that of Teubner, and Pater's *Plato and Platonism* (The Macmillan Co., New York) is recommended as a commentary.

10. **The Philosophy and Culture of the Renaissance.** Lectures. First term. S., 10. *White 5.* Assistant Professor HAMMOND.

The lectures of this course will deal with the Philosophy of Humanism from 1300 to 1600.

11. **The Relations of Philosophy and Literature during the Nineteenth Century.** Lectures. Second term. S., 10. *White 9.* Professor CREIGHTON.

This course will trace the general influence of philosophical conceptions, and particularly of German Idealism, upon British and American Literature. The opening lectures will discuss the general relations of philosophy and literature, and also outline and contrast the leading philosophical conceptions of eighteenth and nineteenth century thought. Coleridge will then be made the starting point, and Wordsworth, Carlyle, Emerson, and Browning will be successively treated from this special point of view.

12. **The Theory of Evolution: Its History and Significance.** Lectures. F., 12. *Boardman C.* Dr. WRIGHT.

These lectures are intended primarily for undergraduates. They do not presuppose acquaintance with the history or special terminology of philosophy. The lectures will trace the history of the theory of evolution from the first appearance of the concept among the Greeks to its formulation in modern times by Darwin. It is then proposed to discuss the recent modifications of the theory, and to indicate the application of the evolutionary method to the various sciences, special attention being directed to its bearing on ethics, sociology, and religion. In conclusion, an attempt will be made to estimate the significance of the evolutionary point of view for a theory of the world as a whole.

14. **Aristotle's Ethics.** Reading of the Greek text. M., 11 (or other hour to be arranged.) *White 5a.* Assistant Professor HAMMOND.

In this course the *Nicomachean Ethics* books I-IV and X will be read and interpreted. The course is intended for such students of

Greek as wish to read rapidly through an Aristotelian treatise and for such students of philosophy as wish to examine Aristotle's ethical ideas in the original.

15. **Thomas Aquinas:** Selections from the *Summa theologica*. T., Th., 12. *White 5a*. Assistant Professor HAMMOND.

This course is intended for students who desire to study at first hand the *Summa theologica*. In connection with the reading of the text the members of the class will study the general system of Thomism and the completion of Medieval Philosophy.

16. **Introduction to Aesthetics.** An elementary course on the philosophy of art. Lectures, assigned readings, and examinations. T., Th., II. *White 6*. Assistant Professor HAMMOND.

The aim of this course is to give a historical survey of the more important theories of Aesthetics, to explain the nature of the aesthetic judgment and its significance for life, and to discuss some of the philosophical problems connected with the various forms of beauty and art : literature, industrial and decorative art, and the fine arts. The course will be of an elementary character, and is open to all students who have taken or are taking Course I.

Reading Courses:—

18. **Reading of German Psychology.** Second term. T., 5 (or other hour, to be arranged). *Laboratory Lecture Room*. Professor TITCHENER.

The aim of this course is to assist toward the accurate and idiomatic rendering of German psychological literature. Fechner's *Elemente der Psychophysik*, vol. I, will be translated in class.

Students who desire to read and translate a psychological monograph in French, German, or Italian, during the first term of the year, are requested to communicate, as early as possible, with Professor TITCHENER or Assistant Professor BENTLEY.

19. **Rapid Reading of German Philosophy.** S., 12. *White 5a*. Assistant Professor HAMMOND.

The primary aim of this course is to aid the students in acquiring facility in translation and a knowledge of German philosophical terminology. Paulsen's *Immanuel Kant, Sein Leben und seine Philosophie* will be translated.

III. Courses Primarily for Seniors and Graduates.

20. **Systematic Psychology.** Lectures, essays, and experimental illustrations. M., W., F., 9. *Laboratory Lecture Room*. Professor TITCHENER, Assistant Professor BENTLEY, and Mr. STEVENS.

The object of the course is twofold : to give the student a complete, if tentative, system of psychology, based upon the results of the experimental investigation of consciousness ; and at the same time, by copious references to rival theories, to orientate him in experimental psychological literature. The first third of the year is devoted to a general introduction (problem, method, relations, and literature of psychology), and to a consideration of the problems of sensation and affection ; the second third, to the topics of qualitative perception (with special emphasis upon the phenomena of tonal fusion), attention, and emotion ; the remaining period, to those of spatial and temporal perception, memory and imagination, action and sentiment.

Essays will be written by the class on psychological questions. The most valuable of these may be published ; several have already appeared in *Mind*, *The Philosophical Review*, and *The American Journal of Psychology*. There will be no text-book, but members of the class will be expected to be familiar with Wundt's *Outlines of Psychology*, and Külpe's *Outlines of Psychology*, and with selected portions of James' *Principles of Psychology*, Stout's *Analytic Psychology*, Ebbinghaus' *Grundzüge der Psychologie* and Wundt's *Grundzüge der physiologischen Psychologie*.

The course may be taken by any student who has had courses 1, 2 and 2a, or their equivalents. It must be taken by all those who undertake advanced work in the psychological laboratory (cf. 40, below).

21. **Laboratory Exercises in Psychology.** Hours to be arranged. *Psychological Laboratory*. Professor TITCHENER, Assistant Professor BENTLEY, Mr. STEVENS and Mr. FERREE.

These exercises will consist primarily in the repetition by the student of certain classical experiments in psychology, carried out in greater detail and with more accuracy than is possible in Course 2. They may also take the form of an original investigation of problems growing out of the work of that course, or of the simpler problems, suggested by the lectures of Course 20. The course may occupy from one to five hours a week, at the option of the student.

22. **Experimental Aesthetics.** Second term. S., 9 (or other hour, to be arranged). *Laboratory Lecture Room*. Assistant Professor BENTLEY.

This course is open to students who have taken (or are taking) Course 20. The lectures will deal with the history of Experimental Aesthetics, as defined by Fechner, devoting especial attention to the recent monographic literature.

24. **Empiricism and Rationalism.** Lectures, discussions, and essays. T., Th., 10, *Whitelock*. Dr. WRIGHT.

In this course the empirical movement as represented by Locke, Hume, and Mill, and the rationalistic movement as represented especially by Descartes, Leibniz, and Wolff, will be studied with reference to their distinctive methods. The course is open to students who have taken, or are taking, Course 3 or an equivalent. The books needed will be Locke's *Essay* (Bohn edition, 2 vols.), Hume's *Treatise of Human Nature* (Clarendon Press), and Leibniz's *Philosophical Works* (Duncan's translation, Tuttle, Morehouse & Taylor, New Haven).

25. **The Critical Philosophy of Kant.** Lectures, discussions, and essays. T., Th., II, *White 5a*. Assistant Professor ALBEE.

This course will presuppose a knowledge of the History of Philosophy. The greater part of the year will be devoted to the careful study of the *Critique of Pure Reason*, Müller's translation (published by The Macmillan Co.) being used in class. Frequent references will be given to standard commentaries and to the more recent literature on the subject. Toward the end of the year, the attempt will be made to show as clearly as possible the relation in which the three Critiques of Kant stand to each other. Instruction will be given mainly by lectures, but there will be opportunity for frequent discussions, and outside reading will be assigned from time to time.

26. **Types of Metaphysical Theory.** First term. Lectures and discussions. T., Th., I2. *White 5*. Professor CREIGHTON.

This course is open to students who have had Course 3 or its equivalent. It is proposed to examine somewhat systematically, by means of lectures and informal discussions, the leading types of philosophical theory, such as Materialism, Idealism, and Pluralism, and in this connection to study some of the fundamental metaphysical problems, and to consider the various kinds of solution which have been offered. For a continuation of this work during the second term, see 26a.

26a. **Problems of the Philosophy of Religion.** Readings and discussions. Second term. T., Th., I2. *White 5*. Dr WRIGHT..

This course is a continuation of 26, and will be devoted to a further consideration and study of special metaphysical questions, and the reading of recent metaphysical works.

27. **Post-Kantian Idealism.** Lectures and textual study. M., W., I2. *White 5a*. Dr. WRIGHT.

28. **The History of Ethics.** Lectures, essays, and discussions. W., F., II, *White 9*. Assistant Professors HAMMOND and ALBEE.

A history of ethical reflection, with special reference to the development of theories of morals in their relations to one another and to the general influences of their time. The first term will be occupied

with the study of the moral theories and ideals of the peoples of Ancient Greece and Rome and of the Middle Ages. The second term will be given to the careful examination of modern theories, with special reference to the development of English ethics.

29. Systematic Ethics. W., F., 10. *White 9.* Professor MC-GILVARY and Dr. DR LAGUNA.

Some of the more important English writers of different schools will be studied in detail by the students and will be fully discussed in class. Thus an acquaintance with recent systems will be gained, and by comparison of system with system an attempt will be made to secure appreciation of the strength and weakness of the various schools. All this work will be conducted with a view to aiding the student in reaching a constructive result.

[**30. German Pessimism, with special reference to Schopenhauer and E. von Hartmann.** Lectures and discussions. Two hours. Assistant Professor ALBEE.]

This course was given in 1903-4, and will be repeated in 1905-6.

31. The Philosophy of Lotze. Lectures and discussions. T., Th., 12. *White 5a.* Assistant Professor ALBEE.

The aim of this course is to present the philosophy of Lotze in its historical relations. The Clarendon Press translation of *The Metaphysic* will be used principally in class, but frequent references will be given to the *Microcosmos* and Lotze's other philosophical works.

[**32. Recent German Philosophy.** Lectures. One hour. Assistant Professor ALBEE.]

This course will not be repeated in 1904-1905.

33. Recent British and American Philosophy. Lectures. S., 10, *White 5.* Assistant Professor ALBEE.

The object of this course is to give the student a coherent account of the development of metaphysical speculation in Great Britain and America from the rise of the Neo-Hegelian School in England to the present time.

[**34. Recent French Philosophy.** Lectures. One hour. Assistant Professor ALBEE.]

IV. Seminaries.

40. Seminary in Psychology and Advanced Laboratory Work. Afternoons except S., 2-6; M., W., F., 10-12. Professor TITCHENER, Assistant Professor BENTLEY, and Mr. STEVENS.

(a) *Graduate Section.* Graduate students will meet weekly by appointment with Professor Titchener or Assistant Professor Bentley, for

the critical and historical discussion of psychological questions. These will, for the most part, be chosen with reference to thesis-subjects for advanced degrees. Theses need not necessarily be experimental; but students who graduate without undertaking original research in the laboratory must have taken Courses 2, 2a, and 20 or their equivalents.

(b) *Undergraduate Section.* Special hours will be set apart for reports of progress in undergraduate thesis work, experimental or historical. In the Senior Laboratory work, experimental problems of a kind to extend over one or both terms, will be chosen to suit the inclination and attainment of students. The professor or his assistants will take constant part in all investigations in progress.

41. **Seminary in Ancient and Mediæval Philosophy.** W., 3-5. *White 5a.* Assistant Professor HAMMOND.

In this Seminary, which is open to graduates and seniors, students will be directed in thesis-work, or in any special investigations they may be carrying on within the department of Ancient and Mediæval Philosophy. Once a week, in the hours above named, the members of the seminary will read the *De anima* or the *Poetics* of Aristotle.

42. **Seminary in Logic and Metaphysics.** F., 10. *White 5a.* Professor CREIGHTON and Dr. DE LAGUNA.

During the first term of the academic year 1904, the subject will be the Logic of the Mental Sciences; while in the second term it is proposed to study the Rise and Significance of Historical Conceptions in Philosophy.

43. **Ethical Seminary.** T., 3-5. *White 5a.* Professor MCGILVARY.

The subject for 1904-1905 will be recent important German literature in Ethics.

[44. **Seminary in the History and Philosophy of Religion.**] This course will not be given in 1904-1905.

V. Philosophical Conference.

A general conference of the professors, fellows, and scholars for the discussion of current philosophical literature will be held fortnightly.

THE SCIENCE AND ART OF EDUCATION.

Students wishing to qualify for the New York State college-graduate certificate are expected to take the state preliminary examinations while pursuing the courses in the Science and Art of Education. These examinations are set for the last Thursday in September and the first Thursday in May, and extend through two days in each case.

The student may combine the standings earned in any three consecutive examinations. The subjects are grouped into four papers, as follows: 1. Arithmetic, Algebra; 2. American History, Civics, Geography; 3. Physiology, Physics; 4. Grammar, English Composition, Orthography. To qualify for the afore-mentioned certificate students are required to take an aggregate of eight hours of work for one year in the Science and Art of Education. The following courses are required: Course 3, Course 1 or 4, and one 1 hour Course.

A. Courses Primarily for Undergraduates.

1. **Principles of Education.** Lectures, discussions and text-book study. M., W., 2, *White 10*. Professor DEGARMO.

This course will serve as an introduction to the general theory of education. The following are some of the leading topics to be considered: The body in education; nature and educational value of the various studies, together with their social significance; nature and function of imitation; the doctrine of interest; methods of teaching and management.

2. **Lectures on Secondary Education.**

(a) **The Development of Secondary Schools.** First half-year. Lectures, discussions and readings. M., 3, *White 10*. Professor DEGARMO.

Comparative study of the development of secondary schools in Germany, France, England and the United States. Prescribed reading: Russell, 'German Higher Schools'; Reports of the U. S. Commissioner of Education on Secondary Education in France and England; Brown, 'The Making of our Secondary Schools.'

(b) **The Period of Adolescence.** Second half-year. Lectures and prescribed readings. M., 3, *White 10*. Assistant Professor WHIPPLE.

A study of the physical and mental characteristics of the adolescent with their significance in secondary instruction.

(NOTE: These two courses are intended to be combined, and together supplant those previously given as "Friday Lectures on High School Work and Administration" and "Monday lectures on the High School.")

3. **History of Education.** Lectures, prescribed readings and essays. T., Th., 3, *White 10*. Professor DEGARMO.

This course includes a general survey of the whole history of education, and a special study of the following topics: the education of the Greek people; the rise and development of humanism; the edu-

cational doctrines of Comenius, Rousseau, Pestalozzi, Froebel, Herbart, Spencer; the development of modern systems of education.

4. Psychological Basis of Education. Lectures, prescribed readings and demonstrations. Lectures, T., Th., 2, *White* 9. Assistant Professor WHIPPLE.

The lectures discuss the educational applications of the chief phases of functional psychology. This Course is the natural preparation for Courses 5, 6, 12, 13, and 14.

5. School Hygiene. First half-year. Lectures, prescribed reading and demonstrations. F., 3, *White* 7 A. Assistant Professor WHIPPLE.

The course will deal entirely with mental hygiene and the hygiene of instruction,—with such topics as fatigue, the period of study, school diseases, defects of sight and hearing, and, so far as time allows, with the hygiene of reading, writing and other studies. It is not intended to present the hygiene of school buildings, heating, ventilation, etc.

From time to time the lectures will be illustrated by demonstrations of an experimental type. Students who are particularly interested in this phase of the work and who are competent for experimental investigation may register for systematic work, with credit, in Course 14. For this work it is desired that students should have taken or be taking, Course 4. The student should, if possible, follow Course 5 by Course 6.

6. The Education of Defectives and the Feeble-Minded. Second half-year. Lectures and prescribed readings. M., 2, *White* 7 A. Assistant Professor WHIPPLE.

An historical, statistical and critical survey of the methods employed in the education of the blind, the deaf and dumb, the feeble-minded and abnormal children generally. Course 5 forms a natural introduction to this work.

7. Teacher's Course in Latin. See course 26, page 13.
8. Teacher's Course in Greek. See course 35, page 11.
9. Teacher's Course in English.. See course 9, page 24.
10. Teacher's Course in German. See course 13, page 18.

B. Courses Primarily for Graduates.

Graduate students selecting education for their major will be expected to take from one-half to two-thirds of their work in the studies that are fundamental to an adequate mastery of educational theory and practice. These fall naturally into two groups, the philosophical and the social. The philosophical studies include psychology, ethics, and the history of philosophy; the social studies include political, social and economic science.

11. **Philosophy of Education.** Lectures, discussions, and study of educational sources. T., Th., 2, *White 10*. Professor DEGARMO.

This is a course in advanced educational theory in both elementary and secondary instruction. It is based chiefly upon the original works of prominent leaders since the Revival of Learning.

12. **Experimental Study of School Children.** First half-year. Lectures, demonstrations and reports. W., F., 2. *White 7 A.* Assistant Professor WHIPPLE.

An examination of the literature dealing with anthropometric and psychological tests of school-children with reference to purpose, methods and results. The lectures will be accompanied by demonstrations of the more important pieces of apparatus, while students who wish practice in conducting school tests may register for experimental work in Course 14.

[13. **Mental Development.** Lectures, prescribed readings and essays. W., F., 2, *White 7 A.* Assistant Professor WHIPPLE.

A study of the growth of the individual mind with special reference to the periods of childhood and adolescence. In the treatment of such factors as heredity, reflex and instinctive action and the doctrine of recapitulation, some attention will be made to the evolution of mind in the animal kingdom. Ability to read either French or German is required. This course will be given on alternate years. It will be omitted in 1904-5.]

14. **Seminary for Experimental Investigation.** Hours and work to be arranged. *White 7 B.* Assistant Professor WHIPPLE.

15. **Seminary for the Science and Art of Education.** W., 7:30 p. m. *White 7 A.* Professor DEGARMO and Assistant Professor WHIPPLE.

The work of the seminary will consist of reports and theses upon educational problems, partly of a social and partly of a psychological nature. These reports and theses will involve study from original sources. At each meeting a portion of the time will be given to reviews of important new books and of the current periodical literature, including especially *The Educational Review*, *The School Review*, *The Pedagogical Seminary*, *The Teacher's College Record*, *The Elementary School Teacher*, and the more important European educational magazines.

MUSIC.

1. **Elementary Vocal Music.** Two hours. Open to all students showing sufficient aptitude to pursue the subject with profit. Ear training, sight reading, elements of harmony, vocal culture, and the study of standard church and secular music.

Attendance is required at the morning service at Sage Chapel, for which service the members of the class constitute the regular choir.

Individual examinations for admission will be held at Sage Chapel, Tuesday, Wednesday and Thursday, Sept. 27, 28 and 29, from 3 to 6 p. m. Tuesday, 7:15 p. m.; Thursday, 5 p. m., Sage Chapel. Assistant Professor DANN.

2. **Advanced Vocal Music.** Two hours. Preparation and public presentation of the best choral works, sacred and secular. This course is offered as advanced work to students possessing good voices and the ability to read music of moderate difficulty.

Students in this course constitute the Advanced Choir at the Sunday Vesper Services at Sage Chapel, and are required to participate in the preparation during the year and public performance in April or May of larger choral works. Händel's Messiah, Dubois' Seven Last Words, Coleridge Taylor's Hiawatha's Wedding Feast, and Stainer's Crucifixion, are among the works to be given during the coming year.

Individual examinations for admission will be held at Sage Chapel, Tuesday, Wednesday and Thursday, Sept. 27, 28 and 29, from 3 to 6 p. m. Tuesday, 5 p. m.; Wednesday, 7:15 p. m., Sage Chapel. Assistant Professor DANN.

3. **Orchestra.** Two hours. Ensemble study of standard works, especially compositions for chorus and orchestra. This course is offered as advanced training for students who play some orchestral instrument sufficiently well to participate creditably in the study and public performance of the works of the best composers. The orchestra will accompany the Advanced Choir at the Sunday Vesper Service at Sage Chapel, and participate in the performance of complete works given by the choir during the year.

Only a limited number can be admitted. Places will be filled by competition, which will be held at Sage Chapel, Wednesday and Thursday, Sept. 28 and 29, at 7:15 p. m. Hours to be arranged. Mr. ——.

Attendance is required of all students in music at the series of Lecture Recitals to be announced.

Full information concerning the series of Chamber Concerts to be given during the year will be announced early in the first term, together with details concerning the three Festival Concerts by the University Chorus assisted by eminent soloists and Festival Orchestra, to be given in April. The hearing of good music interpreted by great artists is absolutely essential to the acquirement of correct ideal in music, and therefore necessary for every music student.

HISTORY AND POLITICAL SCIENCE.

By action of the Board of Trustees, in view of the gift to the University by ex-President Andrew D. White of his valuable historical library, the departments of History and Political Science have been named THE PRESIDENT WHITE SCHOOL OF HISTORY AND POLITICAL SCIENCE. The work of these departments is carried on by five professors, two assistant professors, an instructor, and an assistant.

A.—Ancient History.

The introductory course in Greek and Roman history, open to all students, is designed to cover in outline the history of antiquity from the emergence of the Greek nation to the establishment of the Roman Empire. Attention is concentrated especially upon the characteristic features and achievements of Greek and Roman civilization and upon the factors which led to the final unification of the ancient world under the sway of Rome. The lectures are supplemented by the study of a text book and by assigned readings in selected authorities. Students who have taken this course or who have otherwise acquired a general knowledge of the field it covers may be admitted to the more advanced courses which will be offered in this department. A course of this character, designed chiefly for mature students of history, political science or classical philology, is devoted to the history of the Roman Empire from its establishment throughout the Mediterranean world to the age of Justinian, with special reference to its political and economic organization. This course will involve the study of assigned topics with the use of primary authorities in translation. To upperclassmen in Arts and seniors in the College of Law is offered an elementary course in Roman Law. For graduate students and seniors, possessing sufficient acquaintance with Greek and Latin, there is provided in the seminary in Greek and Roman history an opportunity to engage in the critical study of some special period or problem from the sources. Lectures on the life and antiquities of the Greeks and Romans are offered by the departments of Greek and Latin, and courses on the history of the Oriental nations are given by the professor of Semitic Languages and Literatures.

B.—Mediæval History.

In mediæval history there is open to all students a course of three hours weekly on the history of Europe during the Middle Ages; and to those who have completed this course a similar one on the age of

the Renaissance and the Reformation. For training in historical research in these fields, a practice-course familiarizes the student with the Latin of the mediæval chroniclers, then teaches him to read the manuscripts and interpret the documents of the Middle Ages; and a seminary meant less narrowly for students of pre-modern history, but open only to seniors and graduates, is devoted to historical method, examining first the scope, the materials, and the processes of history, and then addressing itself to the illustration of these by a critical study of some episode or period, in free use of the resources of the library. As further introduction to the mature study of history, a course of one hour weekly deals with the sciences auxiliary to history, giving especial attention to historical geography.

C.—Modern European History.

In English History a general course, intended for sophomores, covers the history of the nation, while an advanced course deals with English Constitutional History, with special reference to the growth of those institutions, legal and political, which have been perpetuated and developed in America.

In the general history of modern Europe, a course intended primarily for juniors, covers from the beginning of the 17th century to the present time. Special periods will be dealt with in more advanced courses and in weekly seminaries devoted to training in research.

D.—American History.

The most general courses offered in this department afford a brief comprehensive survey of our history to the outbreak of the Civil War. They require the use and criticism of the leading secondary authorities and the study of a limited number of selected sources. These are introductory courses designed to prepare undergraduates for further work involving the use, in special courses devoted to selected periods or topics, of a wider range of primary authorities. The subjects of such courses are changed from time to time. At present they comprise: (a) History of the United States from the War of 1812 to the close of the Mexican War. (b) Selected Topics in the Constitutional History of the United States. (c) Economic History of the United States. The seminary of the department, to which the practice class is, in a sense, preparatory, enjoys the exclusive use of a well-equipped room in the University Library, conveniently adjacent to the history stacks. Its work involves the study, by all its members, of some one general subject, upon various phases

of which they are expected to report, at weekly meetings, the results of their investigations in the sources. In 1902-3, the topic thus treated was the political career of Stephen A. Douglas. In the earlier meetings of the Seminary, before its student members are ready to report, informal lectures are given on methods of historical investigation and on the materials of American History. Guidance in the preparation of the theses required for advanced degrees is given as individual need may require.

E.—Political Economy and Politics.

The course in Political Institutions, by a study of the nature of the state, and by a somewhat detailed comparison between the systems of leading foreign governments and that of the United States, with especial reference to the practical workings of these systems rather than to the mere letter of the constitutional law, aims to give the student a needed knowledge of these governments, possibly to suggest at times needed reforms in our own political practices, and especially to develop habits of thinking in an unprejudiced way on political questions.

In the Seminary the time is devoted to a study of the principles of Politics. The work in this class is directed more to the fundamental principles of organic evolution and to those forces, physical, psychological, economic, social, which determine the formation and modification of society and of the state. It is the intention to illustrate these principles by reference to historical experience, especially American and English ; but all the classes in Politics are conducted with the intention of showing the practical nature of those studies in connection with the duties of citizens and of those holding positions of trust in the government.

The course on Modern Questions in International Politics, besides helping to make clear the political relations of modern states, affords also present day illustrations of political principles in action. In 1904-05 this course will treat particularly of the political and social problems of the Orient. The industrial, social and political conditions of Japan, Corea, and China will be treated, and the relations existing between these countries and the leading powers of Europe with the industrial and diplomatic problems arising among them will be discussed in some detail.

Particular attention is called in the study of Political Economy, especially in the course in Economic Legislation, to the intimate relation existing between economic society and the state ; the influence

of economic conditions upon government on the one hand, on the other the powerful influence of the state as a factor in determining economic conditions. The study of present economic questions that are subjects of legislation, and the comparative study of the laws of other states and countries, serve both to throw light on the subject discussed and also to explain why laws on economic subjects seem often so imperfect as well as to show how complex is the nature of the task of the conscientious, trained legislator. It is hoped to make the student see that the study of economic principles is intimately connected with the tasks of everyday life.

During the year 1904-05 the study of Money, Credit and Banking, with especial reference to the principles and practice in international exchange, will form the special subject of study in the course in Economic Legislation.

The collateral courses of the College of Law in American Constitutional Law, International Law, and General Jurisprudence give information of general interest and value to all thoughtful citizens.

The large special collection of foreign statutes and the Moak Library of the College of Law afford special facilities for the study of Comparative Legislation and for the study of the historical development of politics and legislation.

F.—Political Economy and Statistics.

The course in Elementary Social Economics aims to show the significance for the student of economics and social life of the theories of evolution. Attention is centered upon the social group rather than upon the individual. The family, as the simplest and most important social group, is first studied in its historical development and its present organization and life. The study advances from this to the elementary study of more complex and ill defined social groups, such as races and the several classes of social dependents. Emphasis is laid upon the statistical method as an aid in the study of social groups and the measurement of social forces.

The course in Race and Immigration questions will be devoted to a study of the history and present aspects of the relations of the diverse races and nationalities in the United States. Emphasis will be laid especially upon the relation of negroes and whites in the southern states and the relation of immigrants and the native population in the northern states. The course will be open to those who have pursued either the course in Elementary Social Economics or the course in Statistics.

The two courses in Statistics (48 and 49) are designed as an introduction to this method of studying social groups and social life. Emphasis is laid upon the results reached by statistical methods in simple fields where the chances of error in observation or interpretation are fewest. Special attention is given, therefore, during the first term to the statistics of population and to vital statistics. The methods of the United States Bureau of Census in these fields will be presented in detail and a critical analysis made of results of the Twelfth Census.

The course in Industrial Statistics and Commercial Geography, which runs through the second term, is designed as a continuation of course 48, but in special cases it may be taken by students who have not had the former course. Its aim is to study the statistics of Agriculture, Manufactures and Commerce, with especial reference to the United States. Much attention will be given to the interpretation of the statistics of Agriculture and Manufactures gathered by the Census Bureau. In connection with each of these courses two hours of laboratory work will be required of each student. The laboratory is furnished with many of the modern appliances to facilitate statistical work.

G.—Political Economy and Finance.

The general course in Political Economy, 51, should be taken, preferably in the Sophomore year, by all purposing to pursue studies in Political Science. For a few courses only it is not an absolute prerequisite. The course covers broadly both the theoretical and the practical fields, the Monday lectures dealing descriptively with leading American industries.

Other courses represented are on the history and description of economic institutions; on the practical social questions connected with transportation; on the work and administration of the benevolent institutions, public and private; and on monetary, banking and fiscal problems. In the laboratory exercises and research work connected with finance and philanthropy a useful preparation is given for many kinds of social and government work.

In the study of these practical subjects the aim is to gain a clear understanding of the history and facts involved, a close acquaintance with the sources and materials available, and the habit and power of considering them in a fair-minded way. More importance is attached to the interpreting of studies in the light of the personal experience of the student than to the acceptance of doctrines as final conclusions.

The courses in this and the related groups, if pursued systematically,

should aid in preparing for business, law, journalism, the ministry, professional philanthropy, and various lines of government and corporation service, as well as give a modernized "general education" that makes for broader life and better citizenship. Students having a definite aim in view are invited to consult the professor at the beginning of their college course, regarding their arrangement of studies.

Courses in History and Political Science.

Students intending to devote themselves especially to the study of History or Political Science are advised to give as much as possible of their time in the early years of their course to the study of languages. Latin, French and German will be found indispensable in much of their later work.

A.—Ancient History.

*Consultation hours: Professor SILL, M., W., F., 12, Morrill 15.
For Professor STERRETT, see under Greek.*

1. **Greek and Roman History.** A survey of the history of the Mediterranean world from the beginnings of Greek civilization to the establishment of the Roman Empire. Lectures, text-book, and examinations. Open to all students. M., W., F., 11, *Morrill 11.* Assistant Professor SILL.

2. **The Roman Empire.** A study of Roman imperialism from the outbreak of the Revolution to the age of Justinian. Lectures and discussions. Not open to freshmen. T., Th., 12. Assistant Professor SILL.

3. **Roman Law.** An introduction to the history and system of the private law of Rome. Open to upperclassmen in Arts and seniors in the College of Law. Second half-year, M., W., 10, *Boardman B.* Assistant Professor SILL.

4. **Readings in Roman History.** Translation and interpretation of historical sources for the period from 63 B.C. to 37 A.D. These will include selections from Cicero's speeches and correspondence, Caesar, Suetonius, Tacitus and other literature of the last years of the republic and of the early empire. Open to upperclassmen. Th., 4-6, *Greek and Latin Seminary Room.* Assistant Professor SILL.

5. **Greek Life.** The land and the people. Home life and private antiquities. Public life and social institutions. A study of the private life of the Greeks, with illustrations (by lantern views, photographs, etc.) from ancient monuments and remains. T., Th., 12, *White 6.* Professor STERRETT. See Greek 24.

6. [Roman Antiquities.] First term and until Easter recess : A systematic consideration of the constitution of the Roman family, status of women, marriage, children, education, slavery, the Roman house and its furniture, food, dress, baths, games and amusements, books, trade, travel, religion, death, burial, etc. Lectures illustrated by lantern views, photographs, and material in the Museum of Casts. Easter recess until end of year : The Political and Legal Antiquities of the Romans. Lectures. W., F., 12, *Morrill 3*. Professor BENNETT. See Latin 27.]

[7. Oriental History.] Babylonia and Assyria, first half-year; second half-year. The Spanish Caliphate. T., Th., 2, *Morse 3*. Professor SCHMIDT. See Semitics 8.]

Cognate courses : Classical Archaeology 1, Greek Archaeology, Mr. ANDREWS ; Greek 7, Herodotus, Professor STERRETT ; Greek 8, Demosthenes, Professor BRISTOL ; Greek 9, Thucydides, Mr. MACRAE ; Greek 12, The Orations of Thucydides, Dr. FORMAN ; Greek 21 and 22, Greek Literature, Professor STERRETT ; Greek 23, Physical and Historical Geography of Greece, Professor STERRETT ; Latin 17, Literature and History of the Early Empire, Professor BENNETT ; Latin 42, Latin Epigraphy, Assistant Professor DURHAM ; Philosophy 4, History of Ancient and Mediæval Philosophy, Assistant Professor HAMMOND ; Philosophy 5, Platonism, Assistant Professor HAMMOND.

The attention of students who wish to take advanced work in this department is called to the importance of acquiring a reading knowledge of Greek, which those who intend to teach Greek and Roman history will find indispensable. To those who have not taken Greek before entering the University the course in elementary Greek (Greek 1) offers an opportunity to acquire in one year the ability to read Attic prose.

B.—Mediæval History.

Consultation hours : Professor BURR, M., T., W., Th., 10.30-11.15, President White Library.

10a. Europe during the Middle Ages, 300-1300 A.D. Lectures, discussions, and examinations. Open to all students. M., W., F., 9, *Barnes Hall*. First half-year, Professor SILL ; second half-year, Professor BURR.

10b. Europe during the Renaissance and the Reformation, 1300-1600 A.D. Lectures, discussions, and examinations. Open to those who have had course 10a or its equivalent. Second half-year. T., Th., S., 9, *Barnes Hall*. Professor BURR. As, owing to the ab-

sence of Professor Burr during the first half-year, the course is this year condensed to but half its usual length, those who can as well take it at some later time are urged to do so.

11. Courses 11a and 11b are meant especially for students of history who have taken course 10a or 10b and wish preparation for first-hand research in these fields. They presuppose some knowledge of Latin—as much, say, as is needed to read Caesar or Livy.

[11a. **Mediæval Life.** The reading of some mediæval chronicle, with a view to acquaintance with mediæval life and facility in the reading of mediæval Latin. First half-year. T., 4-6, *European History Seminary Room*. Professor BURR. Not given in 1904-5.]

11b. **Palæography and Diplomatics.** The reading of historical manuscripts and the interpretation of historical documents (especially those of the Middle Ages). The course is one of actual study of the manuscripts and facsimiles in the University's possession. Second half-year. T., 4-6, *European History Seminary Room*. Professor BURR.

[12a. **The Sciences auxiliary to History.** A glance at the aims, the methods, the literature, and the use to History of the more important auxiliary sciences—Anthropology, Ethnology, Archaeology, Philology, Epigraphy, Palæography, Diplomatics, Sphragistics, Numismatics, Heraldry, Genealogy, Chronology, Geography. First half-year. Th., 4-5, *Barnes Hall*. Professor BURR. Open only to upperclassmen. Not given in 1904-5.]

12b. **Historical Geography.** A fuller study of this most indispensable of the auxiliary sciences. Second half-year. Th., 4-5, *Barnes Hall*. Professor BURR. Open only to upperclassmen.

13. **Historical Method.** A seminary open only to seniors and graduates, and meant especially for those looking forward to the teaching of history or to historical research. *a.* History: its nature, its purpose, its materials, its methods. *b.* The critical study of some period, event, or phase of history. For the year 1904-1905 the topic will be: England and the Continent during the reign of Edward VI. Second half-year. W., 4-6, *European History Seminary Room*. Professor BURR.

C.—Modern European History.

Assistant Professor Catterall. Consultation hours: M., W., F., 10:30 to 11:00, Barnes Hall.

15. **English History.** Lectures on the national development and the European relations of England, Scotland, and Ireland, with text-

book and examinations. M., W., F., 12, *Boardman Hall, Room A.* Assistant Professor CATTERALL. Open only to sophomores and juniors.

16. **Modern European History, 1600-1900.** Lectures with syllabus, reports and examinations. M., W., F., 11, *Barnes Hall.* Assistant Professor CATTERALL. Open only to those who have had courses 10a and 10b, or course 15. A reading knowledge of French or German is required.

[17a. **History of Europe from 1740 to 1795**, with special reference to the history of Prussia, Russia and Austria. Lectures, discussions and examinations. T., Th., 11, *Morrill II.* Assistant Professor CATTERALL. Open only to those who have had course 16. To be given in 1906-7.]

17b. **History of the French Revolution and the Napoleonic Era, 1789-1815.** Lectures, discussions and examinations. T., Th., 11, *Morrill II.* Assistant Professor CATTERALL. Open only to those who have had course 16.

[17c. **History of Europe from 1815 to the present.** Lectures, discussions and examinations. T., Th., 11, *Morrill II.* Assistant Professor CATTERALL. Open only to those who have had course 16. To be given in 1905-6.]

18. **The Constitutional History of England to the present.** Lectures, study of constitutional documents, and examinations. T., Th., 12, *Morrill II.* Assistant Professor CATTERALL. Open only to those who have had course 15.

19. **Seminary.** Open to graduates and, by permission, to qualified seniors. M., 4-6. *European History Seminary Room.*

D.—American History.

22. **American Colonial History from the Period of Discovery to the French and Indian War.** Text-book, assigned readings and occasional lectures. M., W., F., 11, *Morrill II.* Dr. MERENESS.

23. **Political History of the United States (since 1760).** Professor HULL.

a. Lectures, assigned readings and reports. M., W., F., 10, *Morrill II.*

b. Supplementary practice in historical work. One hour, to be arranged. Open to those only who are taking 23a, and designed for such as look forward to the more intensive study or to the teaching of history.

24. **History of the United States from the War of 1812 to**

the close of the Mexican War. Lectures, readings and reports. First half-year. T., Th., 10, *Morrill 11.* Professor HULL.

Open to those who took course 23 in 1903-04.

25. **Selected Topics in the Constitutional History of the United States.** Lectures, assigned readings and essays. Second half-year. T., Th., 10, *Morrill 11.* Professor HULL.

26. **Economic History of the United States.** Lectures, assigned readings, and reports. First half-year. M., W., F., 9, *Morrill 11.* Professor HULL.

27. **American Constitutional Law.** One hour. W., 9, *Boardman.*

29. **Seminary.** Two hours, to be arranged. *American History Seminary Room.* Professor HULL.

Open to graduates and, by permission, to qualified seniors.

Baccalaureate Theses. Seniors who have taken course 23 and whose essays give satisfactory evidence of their ability to do advanced work, may be permitted to write baccalaureate theses in this department. Permission should be obtained before the end of the junior year, and the thesis subject must be approved before October fifteenth of the senior year. Appropriate credit may be given for the completion of a satisfactory thesis.

E.—Political Economy and Politics.

Consultation hours: Professor Jenks, M., T., and W., 11:10 a. m., Morrill 4 A.

31. **Political Institutions.** Nature and historical development of political institutions. The government of the United States, studied with especial reference to its practical working. Comparative study of foreign governments and their relations to present political problems in the United States. Lectures, collateral reading, reports and discussions. M., T., W., 10, *Morrill 12.* Professor JENKS.

33. **Modern Questions in International Politics: Political and Social Problems in the Far East.** A study of social and political conditions in China, Japan, Far Eastern Russia, and in the possessions of the different countries most closely connected with oriental economic and political problems. An effort will be made to explain the relations of these countries, and especially to show the nature of the interest of the United States in its international relations in the Orient. Lectures, with collateral reading and reports. M., W., 12, *Morrill 12.* Professor JENKS.

34. **Economic Legislation: Money, Credit and Banking.** The course in Economic Legislation in 1904-05 will be devoted to the

special study of Money, Credit and Banking. Especial emphasis will be laid upon credit instruments and their relation to business conditions, and upon banking laws with reference to reforms proposed in the United States. Course 51 or its equivalent is required for admission. M., W., 9, *Morrill 12*. Professor JENKS.

[35. **Municipal Government in Europe and the United States.** The governmental, financial, and social problems presented by the modern city. The latter part of the course is devoted to an extended discussion of the policy of municipal ownership. Students are required to investigate and report on municipal conditions in the localities with which they are most familiar. Three hours, one term. Not given in 1904-05.]

36. **Problems of Organized Labor.** Conditions of employment, methods of industrial bargaining and remuneration, the economic claims and legal status of labor, considered mainly in connection with the growth, policies and activities of labor unions. Course 51 a prerequisite. Three hours throughout the year. M., W., F., 8, *Morrill 12*. Mr. R. F. HOXIE.

[37. **Problems of Industrial Organization.** The economic and social problems of modern capitalism considered with special reference to the development and policies of industrial combinations and monopolies. In alternate years with Course 36. Not given in 1904-5.]

[39. **American Politics.** An elementary course on the government of the United States. The formation and development of the leading political institutions, national, state, and local, and their methods of practical work: influences exerted by various physical, economic and social forces and institutions in shaping our government and its broader lines of policy; the historical development of certain important American political ideas, such as federation, freedom of the individual, expansion. The study will be comparative, but the illustrations will be mainly from English and American history. The aim is to give an insight into the practical working of American politics, as well as to suggest ways of viewing historical and social questions in general. Open to all students. Professor JENKS. Not given in 1904-5.]

40. **Seminary.** Special research work in Politics in connection with certain historical problems. Open only to graduates and by permission to specially prepared students. T., 4-6. *Political Science Seminary.*

Collateral Courses in the College of Law.

History and Evolution of Law. First term until Christmas. Lectures, M., W., 10, *Boardman C.* Professor F. M. FINCH.

International Law.

Second term. Syllabus and lectures. T., Th., 10, *Boardman C.*
Professor HUFFCUT.

American Constitutional Law.

Text-book. W., 9, *Boardman B.*

F.—Political Economy and Statistics.

41. **Elementary Social Economics.** An introductory course upon the relation of evolutionary theories to the social sciences: with applications to the study of the family, race relations, immigration, labor-questions, crime, etc. Wright's Outline of Practical Sociology will be used as a guide. T., Th., 9, *Morrill 12.* Professor WILLCOX.

43. **Race and Immigration Questions.** Survey of the social and economic problems resulting from the presence of diverse races and nationalities within the United States. Course 41 or 48 should have been previously taken. Lectures, investigations and reports. M., W., 10, *Morrill 24.* Professor WILLCOX.

48. **Population Statistics and Demography.** An introductory course in statistical methods with practical work in investigation, tabulation, and interpretation. Special attention is given to the demographic statistics of the United States. Mayo-Smith's Statistics and Sociology will be used as a guide. Designed as a parallel or supplementary course to 41. First Term, M., W., F., at 11 and two laboratory hours a week at a time to be arranged. Credit three hours. *Morrill 24.* Professor WILLCOX.

49. **Industrial Statistics and Commercial Geography.** A continuation of course 48 but with special emphasis upon the agricultural and industrial statistics of the United States. Chisholm's Handbook of Commercial Geography and Mayo-Smith's Statistics and Economics will be used as guides. Second Term, M., W., F., at 11 and two laboratory hours at a time to be arranged. Credit three hours. *Morrill 24.* Professor WILLCOX.

G.—Political Economy and Finance.

Consultation hours: Professor Fetter, M., W., 12 m, Political Economy Seminary.

51. **Elementary Political Economy.** For those wishing a general survey of the field of economic thought, as well as for those preparing to carry on further studies in the department. During the second term special attention is given to Transportation in the sec-

tion for civil engineers. Three hours a week throughout the year. Discussions twice a week on assigned questions, research problems, and text book. Lecture on American industrial problems supplementary to the section work, once a week, M., 11, in *Library Lecture Hall*. Discussions in seven sections: section 1, T., Th., 8; section 2, T., Th., 10; section 3, W., F., 10; section 4, W., F., 11; section 5, W., F., 11; section 6, W., F., 12; section 7, W., F., 12. Professor FETTER, Mr. R. F. HOXIE, and Mr. A. C. MUHSE.

[52. **Exercises in Descriptive Economics.** Elementary practice in the use of the library sources of economic study to equip the student with essential facts and the ways to find them. Not given in 1904-5.]

53. **Modern Socialism.** A historical and critical review of socialistic tendencies and movements since the French Revolution, and of the theories of social structure and progress with which they are connected. Special stress is laid upon the causes of the rapid growth of socialistic parties and upon the practical limits of government interference in production and distribution. Two hours throughout the year. T., Th., 10, *Morrill 12*. Mr. R. F. HOXIE.

[54. **Money, Credit and Banking.** A study of fundamental principles as illustrated in modern experience. In 1904-5, course 34, Economic Legislation, will be devoted to this subject.]

55. **Methods of Modern Philanthropy.** (a) Charities. First term: The nature and causes of degeneracy, the character and extent of the problems of the pauper, feeble-minded, epileptic, insane, and dependent children, and the best modern methods of dealing with these classes. A trip extending from Thursday to Saturday is made to Buffalo where, under the guidance of Porter R. Lee, Cornell '03, assistant secretary of the Buffalo C. O. S., a systematic series of visits is made to a number of philanthropic institutions.

(b) Reformation and Prevention. Second term. In the first half are studied the criminal, the schools of criminology, and modern penal and reformatory agencies. Visits are made to the Elmira Reformatory, the George Junior Republic, the local jail, and the Auburn State Prison. The latter half of the term are considered the preventive and educational measures now developing for the betterment of social conditions.

The course is intended mainly as an aid to enlightened citizenship, but it serves as an introduction to professional charity work. Certified students of this course are granted advanced standing in the New York C. O. S. School of Philanthropy. Lectures, occasionally with lantern slide illustrations, readings, discussions and laboratory

work. Not open to students below Junior. Two hours throughout the year, T., Th., 11, *Morrill 12*. Professor FETTER. (This course probably will be replaced for one year in 1905-06 by a course in some allied problems.)

55A. **Research in Philanthropy.** Graduates, or undergraduates that have done superior work in course 55, may register for special studies in the history and statistics of charities and criminology, in connection with the laboratory exercises of the course in Modern Philanthropy. Credit one to three hours a term. *Political Economy Seminar*, at hours to be determined. Professor FETTER.

[57. **The Economic History of England and the United States.** A survey of the economic development of England and of the United States. Reports on the local economic history of various parts of the United States. Designed especially for those who have completed course 51, but may be taken as introductory to that course by students of sufficient historical training. Three hours, one term. Not given in 1904-5.]

58. **Corporate Finance and Financial History.** (a) Corporate and Private Finance. First term. The study of Wall St. methods, foreign exchanges, the organization of industrial corporations and of some of the important financial corporations, such as trust companies, insurance companies, and savings banks. The recent literature of the subject is discussed and regular reports are made on current changes in market conditions.

(b) Financial History of the United States. Second term. A survey of colonial and revolutionary finances, and a more detailed study of the national finances under the constitution in connection with the industrial conditions of the times. Lectures and special studies on the important periods.

Open to Seniors and Graduates; the second term other capable students that have had course 51 may be admitted. Two hours throughout the year, T., Th., 12, *Morrill 12*. Professor FETTER.

[59. **Public Finance.** (a) Principles of Taxation. First term. The nature of governmental wants, the development of tax systems, the property tax and corporation taxes, the theory of incidence, the problem of equity, and the practicable ideals for a tax system in American conditions.

(b) Public Industrial Revenues. Second term. Fees, special assessments, public industries in city, state, and nation, and the extent and theory of public debts.

Lectures with laboratory work and special reports. Open to those who have had course 51 or an equivalent. T., Th., 12, *Morrill 12*. Professor FETTER. Not given in 1904-5.]

59 A. Research in Finance. Students that have done superior work in course 58 or 59, or maturer students wishing to give special attention to financial studies, may undertake research in coöperation with the laboratory exercises. Credit one to three hours a term. *Political Economy Seminary*, at hours to be determined. Professor FETTER, assisted by Mr. A. C. MUHSE.

60. Seminary. The central subject in 1904-5 will be the theory of shifting and incidence, and the problem of justice in taxation. Special attention will be given to the ablest contributions to the current economic magazines. Open to graduates and a few other well equipped students. Th., 7:30, *Political Economy Seminary*. Professor FETTER.

60 A. Readings in German Economics. To acquaint the advanced student with the subject matter of some notable German works in economics, as well as to give facility in the use of technical German. Exposition of the text and discussion, partly in German. During the year 1904-5 the principal text will be Gustaf Schmoller's *Grundriss der Volkswirtschaftslehre*. One hour credit. Hour to be determined. *Political Economy Seminary*. Mr. A. C. MUHSE.

BIBLIOGRAPHY.

1. Introduction to the Use of Books. A systematic study of Bibliographies, Indexes, Dictionaries, Cyclicopias, etc., including the principles of classification, cataloguing, indexing and preparing manuscript for printing. Lectures and exercises. First half year. T., 4:00.

Students desiring more of the laboratory work may elect one afternoon a week as assigned from 2:30-5 for which one hour credit will be given. Assistant Librarian AUSTEN.

2. General Bibliography. The materials and form of books in ancient times; books in the middle ages, block books, early printed books, illustrated by examples of manuscripts and incunabula; book-illustration, book-bindings; form-notation; systems of classification and cataloguing; general bibliographical aids. Second half-year. Lectures. T., 12. Mr. HARRIS.

MATHEMATICS.

Pure Mathematics.

The work in mathematics prescribed for students in ENGINEERING and ARCHITECTURE takes one year. It presupposes a good knowledge of plane and solid geometry, of elementary and advanced alge-

bra, and of plane and spherical trigonometry; and it consists of elementary courses in analytic geometry and the calculus.

For students in ARTS all work in mathematics is elective, and this work may be roughly divided into elementary courses and advanced courses.

The elementary courses are in solid geometry, elementary and advanced algebra, plane and spherical trigonometry, analytic geometry including conic sections, differential and integral calculus, and differential equations. These courses may all be taken by a good student, well qualified, during his freshman and sophomore years. They serve as a sufficient preparation for the ordinary work in physics, chemistry, etc., and they mark the minimum of attainments that a teacher of mathematics in a high school or academy ought to possess.

The advanced courses are for juniors, seniors, and graduates. Together they would take one's entire time for four or five years; they give a general survey of the field of mathematical science, and serve as an introduction to any special field one might wish to cultivate.

The sequence and interdependence of these courses, and the order in which they may best be taken up, are shown in the detailed statement of the courses themselves.

Mathematical Physics.

The subjects offered in this connection fall into two main groups.

In the first group are the calculus, differential equations, probabilities and the theory of errors, vector analysis, and function-theory. These have already been mentioned under pure mathematics. Although these courses are in the field of pure mathematics, yet they are necessary, as introductions to most of the subjects in the second group mentioned below, and they are important in themselves to the student of physics, much of whose work without their aid would be too purely empirical, no less than to the student of pure mathematics, whose outlook is enlarged by the physical concepts and interpretations involved. Most of the courses in this group are open to any good student who has had the elementary courses named above.

The second group consists of (1), two general introductory courses, one in theoretical mechanics with special reference to the dynamical principles needed for the subsequent work, and the other in Fourier's series and spherical harmonics, in which various typical physical problems are treated, the appropriate differential equations being derived from physical laws, and the most important solutions of these equations discussed; (2), the mathematical theories of definite branches of physics, such as sound, including the general vibrating

system, with Rayleigh's treatise as the basis ; hydrodynamics, including mechanics of the atmosphere and vortex-motion ; electricity and magnetism ; theories that have all been extensively developed by aid of the higher analysis.

Courses in light and thermodynamics are given by the Department of Physics, as are also courses in electricity and magnetism less mathematical in character than course 46 below.

The Mathematical Club, Theses, and the Library.

The Oliver Mathematical Club, composed of teachers and advanced students, has for its objects : The systematic presentation by the members, in turn, of some specified mathematical theory of recent development ; and the hearing of reports from different members on noteworthy articles in current journals, and on the results of special reading and investigation ; The club meets every week.

In addition to the courses of instruction definitely announced, special reading in pure and applied mathematics is assigned to advanced students desiring it ; provision is made for the writing and criticism of mathematical theses, and students are encouraged to follow up special inquiries by aid of the University Library, which now contains several thousand volumes on pure mathematics, mathematical physics, and astronomy, including the principal mathematical journals, and transactions of scientific societies.

Mathematical Models.

The collection of models, about three hundred in number, includes :

1. Plaster models of the quadric and cubic surfaces, of several forms of the Kummer surface, of the cyclides, of surfaces of centres of quadrics, and of minimum surfaces.

2. Plaster models illustrating positive, negative, and parabolic curvature, and constant measure of curvature.

3. Plaster models illustrating the theory of functions ; among them models of simply and multiply connected surfaces and of several forms of Riemann's surfaces, and models representing the real parts of algebraic, exponential, logarithmic, and elliptic functions.

4. Wooden and glass models of crystals and polyhedra.

5. Wire and thread models of twisted curves and ruled surfaces, and skeleton frames for minimum surfaces.

The following schedule of hours is made out as nearly as possible, for the coming year ; but necessary changes will be made at any time,

I. Elementary Courses Prescribed for Students in Engineering and Architecture, and open to Election by Students in Arts.

2. Analytic Geometry and Calculus. For freshmen in Engineering and Architecture. Immediately before taking up this course students should carefully review Elementary Algebra and Plane Trigonometry (see "Special Directions," p. 38.)

Fourteen sections daily, ex. Sat.

At 8, *White 22*, Professor WAIT; *White 24*, Assistant Professor SNYDER; *White 17*, Dr. FITE; *White 13*, Dr. HASKINS; *White 18 A*, Mr. AKERS.

At 10, *White 22*, Professor WAIT; *White 18 A*, Professor TANNER; *White 17*, Assistant Professor SNYDER; *White 24*, Assistant Professor HUTCHINSON.

At 11, *White 18*, Professor MCMAHON; *White 18 A*, Professor TANNER; *White 24*, Assistant Professor HUTCHINSON; *White 17*, Dr. FITE; *White 21*, Dr. HASKINS.

(a) Analytic Geometry. Credit, 4 hours first term.

(b) Differential Calculus. Credit, 1 hour first term, 2 hours second term.

(c) Integral Calculus. Credit, 3 hours second term.

4. Analytic Geometry and Calculus. For freshmen in Engineering and Architecture.

Daily ex. Sat., after the Christmas recess, *White 21*, Mr. AKERS.

(a) Analytic Geometry. Credit, 2 hours each term.

(b) Differential Calculus. Credit, 3 hours second term.

II. Elementary Courses open to Freshmen and Sophomores in Arts.

6. Geometry, Algebra, and Trigonometry. For freshmen who enter the University on the minor requirements in mathematics (plane geometry and elementary algebra). This course is substantially equivalent to the major entrance requirements in mathematics, and it is sufficient for elementary work in physics. Two sections: M., W., F., at 8, *White 21*, Professor JONES; M., W., F., at 12, *White 18 A*, Professor TANNER.

(a) Solid Geometry. Credit, 2 hours first term.

(b) Advanced Algebra. Credit, 1 hour each term.

(c) Plane Trigonometry, with field work in surveying. Credit, 2 hours second term.

7. Geometry, Algebra, and Trigonometry. For freshmen who enter on the major requirements (solid geometry, advanced algebra,

and plane and spherical trigonometry); supplementary to those requirements, and necessary to further elective work in mathematics. T., Th., at 8, *White 21*. Professor JONES.

(a) Solid Geometry. Credit, 1 hour first term.

(b) Advanced Algebra. Credit, 1 hour first term.

(c) Spherical Trigonometry, with field work in surveying. Credit, 2 hours second term.

8. **Geometry, Algebra, and Trigonometry.** For freshmen who enter on the minor requirements. Equivalent to courses 6 and 7 combined. Daily, ex. Sat., at 9, *White 21*. Professor JONES.

(a) Solid Geometry. Credit, 3 hours first term.

(b) Advanced Algebra. Credit, 2 hours first term, 1 hour second.

(c) Plane and Spherical Trigonometry, with field work in surveying. Credit, 4 hours second term.

9. **Problems in Geometry, Algebra, and Trigonometry.** Supplementary to courses 7 and 8, and may be taken at the same time with either of those courses. This course is for the benefit of those students, particularly freshmen, who, being interested in mathematical studies, wish to lay a good foundation for the higher work that follows. Credit, for Geometry, 1 hour first term; for Algebra, 1 hour first term; for Trigonometry, 2 hours second term. S., 8-10, *White 21*. Professor Jones.

10. **Analytic Geometry and Calculus.** For sophomores who have had courses 7 or 8, but may be taken by freshmen who are well qualified, at the same time with course 7. M., W., F., at 8, *White 18*. Professor MCMAHON.

(a) Analytic Geometry. Credit, 2 hours first term.

(b) Differential Calculus. Credit, 1 hour each term.

(c) Integral Calculus. Credit, 2 hours second term.

11. **Differential Equations.** An elementary course arranged for students in engineering and in physics, and for those who intend to study advanced mathematics. The course is devoted mainly to the solution of the simpler ordinary and partial differential equations. An elementary knowledge of the integral calculus is a prerequisite for entrance to this course. Two hours. Assistant Professor SNYDER.

III. Advanced Courses open to Juniors, Seniors, and Graduates.

For these courses, hours will be arranged to suit the members of the classes. In some cases the courses stated as necessary in a given course may be taken at the same time with it. A course may not be given if not more than two persons call for it.

12. **Higher Algebra and Trigonometry.** A continuation of courses 7 and 8. It covers continued fractions, limits and derivatives, imaginaries, series, theory of equations, application of imaginaries and exponentials to circular and hyperbolic trigonometry, and determinants. Necessary for most of the courses that follow. T., Th., S., at 10, *White 21*. Professor JONES.

13. **Projective Geometry.** Requires courses 7 or 8, and some knowledge of Analytic Geometry; necessary to courses 19, 20, 23, 33, and very useful in courses 15, 20, 41, 43, and in certain problems in mathematical drawing. T., Th., S., at 8, *White 18*. Assistant Professor HUTCHINSON.

The principal aim of the course is to familiarize the student with reasoning about geometric forms. No use is made of algebraic methods. The usual topics of elementary synthetic geometry are first studied, then the principles thus acquired are applied to the study of cubic curves, of cyclical collineations, and of the basis of metric geometry. Considerable attention is given to drawing.

[14. **Theory of Probabilities and Least Squares**, with some applications to insurance and the theory of errors. Requires courses 2 or 10. Two hours. Professor JONES.]

15. **Advanced Work in Analytic Geometry.** Requires courses 2 or 10, 12 and preferably 13. Necessary in most of the courses that follow. Professor WAIT.

Lines of the first and second orders. Two hours. Surfaces of the first and second orders. One hour.

17. **Advanced Work in Calculus.** Requires courses 2 or 10, and 12. Necessary to all the courses that follow.

(a) **Differential Calculus.** Two hours. Professor WAIT.

(b) **Integral Calculus.** This course is given by lectures accompanied by mimeograph notes, frequent illustrative problems being assigned to the class as exercises. A short drill on the integration of various forms is followed by a full discussion of the conditions and criteria for integrability of any given function. The course includes definite integrals, and methods for their evaluation; various functions defined by definite integrals such as the gamma function and curvilinear and multiple integrals. Two hours. Dr. FITE.

18. **Introduction to the Theory of Groups.** This course includes a discussion of the important properties of abstract, substitution, and linear groups; the Galois theory of algebraic equations; and the theory of group characteristics as developed by Frobenius and Burnside. Three hours. Dr. FITE.

19. **General Theory of Algebraic Curves and Surfaces.** Re-

quires courses 12, 13, 15, 17. Necessary to course 33, and preferably to many of the courses that follow.

(a) **Algebraic Curves.** The principal subjects treated are conditions which determine a curve, Plücker's numbers, envelopes, birational transformation, resolution of singularities, and forms of curves of the third and fourth orders. Three hours. Assistant Professor SNYDER.

[(b) **Theory of Surfaces.** Requires courses 13, 15, 17, 19a, 21. Begins with a short review of analytic geometry of three dimensions, including systems of coördinates and a few transformations. Then follows the derivation of the principal differential formulæ of the theory of surfaces. Lines traced on surfaces are treated, giving especial attention to asymptotic lines and lines of curvature, with an introduction to Lie's geometry of the sphere and its group of transformations. The course deals largely with the derivation of differential equations and the study of infinitesimal deformations, but synthetic proofs are employed whenever they simplify the problems. Three hours.]

[20. (a) **Algebraic Invariants.** Requires courses 12, 15 and 17; and preferably courses 11 and 13. This course is given chiefly by lecture. The general linear transformation is applied, first to a single binary quantic, and later to a system of simultaneous quantics in n variables; and the necessary and sufficient conditions for invariants, covariants, etc., are investigated. Simultaneous invariants are shown to include covariants as a special case, and such invariants are represented as functions of the coefficients, of the roots, and also in the symbolic notation. Hilbert's proof of Gordan's theorem on the finiteness of the number of irreducible invariants is given, both for the binary quantic, and also for any number of quantics in n variables. Much of Elliott's Algebra of Quantics is read by the class in connection with the lectures, and some attention is paid to the geometric side of the subject. Two hours. Professor TANNER.]

20. (b) **Higher Algebra.** Continuation of course 12. It includes symmetric functions, general theory of elimination, linear transformations, elements of invariants and covariants, etc. Two hours. Professor TANNER.

21. **Ordinary Differential Equations.** Advanced course. Requires courses 2 or 10, 11, 12, 25 (a).

General theory of the differential equation, with an introduction to the functions defined by such equations. Lectures, with references to the works of Heffter, Schlesinger, and Klein, and to Part III of Forsyth's Theory of Differential Equations. Three hours. Dr. HAS-KINS.

[22. **Non-Euclidean Geometry.** Requires courses 2 or 10, 11, 12, 13, 15, and preferably 19. Begins with some consideration of the foundations of Geometry, followed by the projective theory of non-Euclidean Geometry as developed by Klein, with applications to the theory of functions, the theory of numbers, etc.; also portions of Lie's treatment of the Riemann-Helmholtz problem. Two hours.]

[23. **Continuous Groups.** Lie's Continuierliche Gruppen will be followed. Requires courses 11 and 17. Three hours.]

24. **Calculus of Variations.** Requires courses 2 or 10, 11, and 17 (b). Consideration of the general theory as developed by Weierstrass, Hilbert, and Kneser, with applications to classic problems. Two hours. Dr. HASKINS.

25. **Theory of Functions.** Requires courses 11, 12, and 17.

(a) Theories of Cauchy, Weierstrass, and Riemann, including infinite series and integration, conformal representation, algebraic functions and their integrals, etc. Rigour in the treatment of fundamental principles and methods is emphasized. Two hours. Assistant Professor HUTCHINSON.

[(b) Second year. Elliptic and Abelian Functions. The elliptic and abelian integrals studied by the methods of Riemann. The theta functions, and the inversion problem; geometrical applications to curves of genus one, and to hyperelliptic surfaces. Two hours. Assistant Professor HUTCHINSON.]

[29. **Theory of Numbers.** Includes a discussion of congruences, quadratic residues, quadratic forms and algebraic numbers. Requires course 12 and preferably course 20. Two hours. Dr. FITZ.]

[30. **Quaternions and Vector Analysis.** Requires courses 12, 17, and something of mechanics. Two hours. Professor McMAHON.]

[33. **Line Geometry.** Requires courses 13, 15, 17, 19a, 20, 21. Line coördinates, systems of linear complexes, and cubic scrolls; infinitesimal geometry, normal correlation, surfaces of singularities, focal surfaces, asymptotic lines, developable surfaces; transformation of coördinates, Klein's fundamental complexes, the quadratic complex, and the Kummer surface. Three hours. Assistant Professor SNYDER.]

Mathematical Physics.

41. **Theoretical Mechanics.** Includes kinematics, statics and kinetics with special reference to the dynamical principles needed for subsequent work. Requires courses 11 (or preferably 21), 12, 15, 17. Necessary to most of the courses that follow. Two hours. Professor McMAHON.

42. (a) **Potential Function, Fourier's Series, and Spherical Harmonics**, with applications to physical problems. Introductory to Mathematical physics. Requires courses 17, 21, 41. Useful in all of the courses that follow. Two hours.

(b) Continuation of 42 (a). Reading course in Riemann-Weber, *Die partiellen Differential-gleichungen der mathematischen Physik*. Two hours. Professor McMAHON.

[43. **Celestial Mechanics**. Requires courses 12, 17, 21, 40, 41, and preferably 42. Two hours.]

44. **Mathematical Theory of Sound**; including the general theory of vibrating systems. Based on Rayleigh's treatise. Requires courses 12, 17, 21, 41, 42, and preferably 15, 20, 25 (a). Two hours. Professor McMAHON.

(a) First year. General theory with applications to strings, bars, membranes, and plates.

(b) Second year. Aerial vibrations.

45. **Mathematical Theory of Fluid Motion**, including the mechanics of the atmosphere and vortex motion. Allied to course 44, and has the same prerequisites. Reading course.

46. **Mathematical Theory of Electricity and Magnetism**. Requires courses 12, 17, 21, 42, and preferably 15, 20, and 25 (a). Reading course.

47. **Mathematical Theory of Thermodynamics**. Requires only a knowledge of calculus. Three hours. Professor TREVOR.

[Other courses in Mathematical Physics are given by the Department of Physics.

PHYSICS.

Lecture Course in Elementary Physics.—The instruction in the elements of physics is by means of lectures given twice a week throughout the year. In these lectures the general laws of mechanics and heat, electricity and magnetism, and acoustics and optics, are presented. The very large collection of lecture room apparatus possessed by the department makes it possible to give experimental demonstrations of all important phenomena. The course of lectures is supplemented by recitations, for which purpose the class is divided into sections of about twenty members each.

Four courses are given, which vary in extent from two to five exercises a week. The ground covered in these courses is essentially the same, but the methods of treatment differ, being adapted in each case to the needs and previous training of the class of students for which the course is designed. The successful completion of the freshman

mathematics, except as noted elsewhere, is in all cases requisite for admission to these courses.

Courses of Laboratory Instruction.—The first year of laboratory work is devoted to the experimental verification of physical formulæ, to practice in the use of instruments of precision and to the attainment of some knowledge of the simpler methods of physical manipulation. Students who have completed the first year's work make a more extended study of various physical constants. They learn the use of standard instruments, and become acquainted with the methods employed in research. For students of engineering complete courses in photometry, in the calibration of instruments and in the study and testing of direct, alternating and polyphase current machinery are arranged. The opportunities afforded for advanced work in electricity are unusual.

Every encouragement is offered to advanced students for the carrying on of original investigations, and every opportunity is taken to stimulate a spirit of scientific inquiry. Courses of reading are suggested to such students, in connection with their experimental work; and they are brought together in seminary at frequent intervals for the discussion of topics of scientific interest. Several courses in mathematical physics are given for the benefit of such students. It is the aim of the department to furnish every possible facility for research.

The Laboratory of Physics.—Franklin Hall is devoted exclusively to the use of the department of Physica. It is of red sandstone, and is three stories in height above a well lighted basement. The building contains, in addition to the amply equipped laboratories of the department, a lecture room, seating about two hundred students, and four recitation rooms for the use of classes. Piers are provided in several of the rooms for apparatus requiring immovable support, and some of the rooms in the basement and in the annex have solid floors of cement, upon any part of which galvanometers, etc., may be used. The arrangements for experimental work are most complete. Gas, water, steam, oxygen, hydrogen, acetylene, compressed air, blast and vacuum cocks are within easy reach, and dynamo and battery currents are available. Liquid air, whenever needed for lecture or laboratory work, is manufactured by means of machinery installed for that purpose in the basement of the building. A masonry pier, four by twelve feet, permits the use in the lecture room of apparatus that could otherwise only be used in the laboratory. A small turbine on the lecture table furnishes power for a variety of experiments. Lanterns with the lime or electric light are always in readiness for

use when they can in any way aid a demonstration. Adjacent to the lecture room are three large apparatus rooms.

The laboratory rooms in the lower portion of the main building are devoted to advanced work, those on the upper floors of the west end to elementary practice. On the fourth floor is a suite of rooms arranged for the study of photography, with special reference to its application to physical investigation. Work in applied electricity is carried on chiefly in the basement laboratories, in the annex, and in the dynamo rooms of the department.

The equipment of the Department of Physics comprises many fine instruments of precision. A very valuable adjunct is a well equipped workshop connected with the department, where a skillful mechanician is constantly employed in making apparatus. Some of the most valuable instruments in the collection have been made in this shop. A further statement of equipment available for the use of the department will be found under the heading *laboratories of electrical engineering*.

Rockefeller Hall, a new building now under construction for the use of the Department of Physics, is situated on the upper side of East Avenue, opposite Goldwin Smith Hall. It consists of a lecture room wing on the south, 73 x 157 feet, which contains three lecture rooms with a seating capacity of 600, 160 and 120 respectively, a suite of seven recitation rooms, several large rooms for the storage of apparatus, an instrument maker's shop and various small rooms designed with reference to special lines of physical investigation. Parallel to this on the north is a similar wing, likewise four stories in height, which is devoted to the work in pure and applied electricity, to the junior laboratory for general physics, and to the photographic laboratory.

These wings are joined by a structure, parallel to East Avenue, which is 152 feet long and which contains research rooms, offices, library, periodical room, seminary room, the rooms of the sophomore laboratory and special rooms, on the upper floor for advanced work in optics and photography.

To the east of the north wing is the dynamo laboratory of the department, a one-story structure 130 x 60 feet. This group of connected laboratories, the construction of which has been made possible by a gift of \$250,000 from Mr. John D. Rockefeller, will afford opportunities for experimental work in physics, and for laboratory instruction unequalled in this country.

The following courses are offered in 1904-1905.

Undergraduate Courses.

1. Mechanics and Heat, Electricity and Magnetism. Acoustics and Optics. Four hours a week. Two lectures a week. M., W., or T., Th., 12. Professors NICHOLS and MERRITT. Two recitations by the class in sections, at hours to be arranged. Assistant Professor SHEARER, Messrs. OLSHAUSEN and —.

Course 1 is intended to meet the needs of students in Electrical Engineering, Mechanical Engineering, and of such others as have the requisite mathematical preparation. An elementary knowledge of the calculus is required.

2. Elective Course in Experimental Physics. This course is divided into the following parts, 2a, 2b, 2c, and 2d, which may be taken together or separately as specified below.

2a. Short Course in Experimental Physics. Two hours, lectures. M., W., or T., Th., 9. Assistant Professor SHEARER.

Course 2a is offered for the benefit of students who do not intend to pursue the subject further nor to devote especial attention to the sciences of Mathematics, Chemistry or Geology, but who desire to acquire some knowledge of the simpler phenomena of Physics. It is accepted as the required work of the courses in Agriculture and Architecture, but students in these courses are urged, whenever practicable, to take 2b and 2c also. Course 2a is open to freshmen, and is at present accepted in place of the required courses for students of Medicine (see course 7). Students in the College of Arts and Sciences who expect to study medicine should take courses 2a or 7, 2b, and 2c.

The completion of 2a does not qualify the student to enter course 3 or any subsequent course in Physics with the exception of 2b, 2c, 2d, and course 9.

2b. Recitations in Experimental Physics. Two hours; Assistant Professor SHEARER. Messrs. FENNER and DORSEY.

Course 2b is open only to those who are taking 2a or have completed that course or its equivalent and who have a knowledge of plane trigonometry. It should be taken in connection with 2a by all who wish to prepare for any of the more advanced courses in Physics, or who intend to study Mathematics, Chemistry, Geology, Medicine, or the Biological Sciences.

2c. Introductory Physical Experiments. (For students in Arts and Sciences) ; One or two hours ; one or two $2\frac{1}{2}$ hour periods per week in the laboratory. Assistant Professor BLAKER, Messrs. FISHER and DORSEY.

Course 2c is offered especially for those taking 2b, but is open to others who are taking, or have completed 2a or its equivalent. Me-

chanics, Heat, and Magnetism are taken the first term; and Electricity, Sound, and Light the second. If desired, the course may begin with the second term provided the first term of 2a has been completed.

2d. *Introductory Physical Experiments.* (For students in Engineering). One hour; one $\frac{1}{2}$ hour periods per week in the Laboratory. Assistant Professor BLAKER, Messrs. FISHER and DORSEY.

This course, together with 2a and 2b, constitutes the required work in Physics for students in C.E.

Students of whom course 1 is required may substitute for the same courses 2a, 2b, and 2d (5 hours).

Examinations for those unavoidably absent from either term examinations in courses 1, 2a, or 2b, or who have conditions to make up in any of the above courses, will be held on registration day, Sept. 29, at 2:00 p.m., and in May. No special examinations at other times will be given.

3. **Physical Experiments.** Theory and methods of physical measurements. Two to six hours. The laboratory will be open M., T., W., Th., F., 2 to 5; T., Th., 8-11 and S., 9-12. Assistant Professor BLAKER, Messrs. GAEHR, MANNING, and GAGE.

Course 3 includes laboratory experiments illustrating general laws in all branches of Physics, and instruction in the adjustment and use of the instruments of precision employed in mechanics, heat, light, and electricity. It is open to students who have passed satisfactorily in courses 1 or 2. Each student devotes to the course two afternoons or more each week, according to the amount of credit desired, and pursues it in such order as the appointments of the laboratory may require. Students in Mechanical Engineering and Electrical Engineering are required to take the equivalent of two hours a week only.

4. **Dynamo Laboratory Practice.** Tests of electrical instruments and determination of constants. Theory and experimental study of dynamo machines, including tests of efficiency. Alternating and polyphase currents. [For special work in alternating current testing, see course 24.] Two to four hours laboratory work. Daily. Assistant Professors MOLER and BRDGELL, and Messrs. COCHRANE, PATTISON, and PIERCE.

Course 4 is open to all students who have completed course 3. Taken together with course 8, it forms part of the prescribed work of the senior year in Electrical Engineering.

6. **Advanced Laboratory Practice,** in general Physics for undergraduates who have completed course 3. This course is preparatory

to graduate course 18. It is intended to meet the wants of those who expect to teach experimental physics, and may occupy from three to six hours per week. Professor NICHOLS, Professor MERRITT and Assistant Professor SHEARER.

Students in course 6 are expected to devote at least a term to a single problem, studying the literature of the subject exhaustively and performing the experimental work with all the care and thoroughness of an original research.

7. **Required Course in Elementary Physics** for students in Medicine. Two hours, M., W., or T. and Th., 9; (lectures and experimental demonstrations). Assistant Professor SHEARER.

In this course special attention will be given those to portions of the science which are of direct importance to medical students. The theory and construction of the balance ; the phenomena of diffusion and osmosis ; thermometry ; the theory and operation of voltaic cells, induction coils, electro-static machines and X-ray apparatus ; the theory and use of the microscope, spectroscope, polariscope, etc. ; the physics of vision and audition and other topics essential to modern medical practice will be more fully treated than is customary in elementary courses in general physics.

Owing to the crowded condition of the lecture room this course will coincide with 2a for the year 1904-1905.

8a. **Applied Physics for Engineers.** First half-year : Photometry and Physics of Artificial Lighting. Second half-year : The Measurement of Current, Electromotive Force and Resistance. One hour. Lectures. F., 12. 1904-05. Professor NICHOLS.

8b. [**Applied Physics for Engineers.** First half-year ; Primary and Secondary Batteries, Standard Cells and Voltameters. Second half-year : The Electric Transmission of intelligence. One hour. Lectures. F., 12. Professor NICHOLS, 1905-06.]

9. **Practical Photography.** Two hours; Lectures and laboratory practice. Second term. Assistant Professor MOLER.

Lectures Monday 3:30 to 4:30 throughout the term. Laboratory practice (at hours to be arranged).

Course 9 is open only to students who have the requisite knowledge of chemistry and physics. The requisite knowledge of these subjects is in general that possessed by those who have completed Chemistry Course 1 and one term of Physics, 1, or 2a.

10a. **Heat and Light.** Heat ; first half-year, Light ; second half-year. Two hours. Assistant Professor BLAKER, 1904-05.

10b. [**Electricity and Magnetism.** Two hours per week throughout the year. Two hours. Assistant Professor BLAKER, 1905-06.]

Courses 10a and 10b are intermediate courses and are intended to prepare students who have taken courses 2a, 2b and 2c or their equivalent for the graduate courses 11a, 11b, 14a and 14b.

Course for Graduate Students.

11a. [Theoretical Physics. Mechanics and Thermodynamics. Professor MERRITT. Three hours lectures and one hour seminary throughout the year. 1905-6.]

11b. Theoretical Physics. Electricity and Magnetism. Professor MERRITT. Three hours, lectures and one hour seminary throughout the year. 1904-5.

Courses 11a and 11b, together with courses 14a and 14b, are intended to give an outline of theoretical physics for students who expect to specialize in this subject.

12. Recent Advances in Experimental Physics. Professor MERRITT. One lecture a week. F., 9 or 10. This course will be devoted to such of the more important developments in physics as have not yet found their way into the text-books. The lectures will be illustrated by experiments whenever the nature of the subject permits.

In 1904-5, about half the time of this course will be devoted to the subject of Electrical Oscillations and Electrical Waves.

13. Electricity and Magnetism. Professor MERRITT. Lectures and Seminary. For advanced students who have completed course 11b or its equivalent. This course is capable of modification to suit the needs of those electing it. Some treatise such as Boltzmann, Maxwell, or J. J. Thomson will be used as a basis.

14a. [Theory of Light. Four hours. Assistant Professor SHEARER. Three recitations a week based on Drude's Theory of Light. One experimental lecture a week by members of the class under the direction of the instructor. 1905-06.]

14b. Theory of Heat. Four hours. Assistant Professor SHEARER. Three lectures a week on the Kinetic theory of matter, molecular physics and Thermodynamics. One experimental lecture a week by members of the class under the direction of the instructor. 1904-5.

15. Wave Motion. Two hours. Lectures on the theory of wave motion in optics, electricity, etc., with problems suited to the requirements of the class. Assistant Professor SHEARER.

16. Advanced Photography, with special reference to its application to research. Two hours. Laboratory practice. First term. Assistant Professor MOLER.

Students who have completed courses 1, 3, and 9, or an equivalent, will be admitted to this class.

17. **Physical Seminary.** Two hours. Critical reading of original memoirs relating to physics ; followed in the latter part of the year by reports upon original work done in the department. Professor NICHOLS.

Course 17 is a colloquium in which all members of the teaching staff of the department, as well as graduate students of physics take an active part.

18. **Advanced laboratory practice in general physics** preparatory to research. This course is open to undergraduates who have completed courses 3 and 6 or 3 and 4 ; also to graduates who have had the above courses or their equivalent. The amount of time to be given and hours of attendance will be arranged to suit each individual case. Professors NICHOLS and MERRITT, and Assistant Professor SHEARER.

19. **The Radiation of Energy.** Two hours throughout the year at times to be arranged. Dr. OLSHAUSEN.

22. **Theory of Alternating Currents,** and alternating current measurement. First half-year. Two hours. T., and S. 10. Assistant Professor BEDELL.

23. **Magnetism and Electricity.** Second half-year. Two hours. Special reading and seminary work for those who have completed course 22. Assistant Professor BEDELL.

By special arrangement this course may be taken during both terms.

24. **Alternating Current Measurement.** Testing of transformers, rotaries, and induction motors for single phase, two phase, and three phase circuits, and the transmission and transformation of polyphase currents ; also special work in direct current testing. Course 24 should be taken by students who expect to prepare experimental theses upon the above subjects. Two hours throughout the year. Requirements the same as for course 4, and also the taking of course 22. Assistant Professor BEDELL and Messrs. COCHRANE and PATTISON.

By permission, course 24 may be substituted for equivalent hours in course 4.

CHEMISTRY.

Inorganic Chemistry. The elements of inorganic chemistry are taught by lectures, laboratory work and recitations from a text-book. The instruction conforms in the main to the course outlined by the College Entrance Examination Board.

Advanced courses of lectures in inorganic chemistry, both with and without laboratory practice, are offered for advanced students. These courses are also open to all who have completed certain preliminary

work. In one of these lecture courses the history of chemistry is considered in detail. The other deals with the study of the properties of all the elements and is based upon the periodic law of Mendeleeff. The laboratory work in advanced inorganic chemistry comprises the preparation and purification of inorganic compounds and the extraction of the rarer elements from ores and minerals. The facilities for investigation in this field are very complete, and the student is afforded opportunity for research not merely in synthetic inorganic chemistry, but also in advanced spectroscopic chemical analysis and gas analysis.

Qualitative and Quantitative Analysis. Five beginning courses are given in chemical analysis. These vary in scope and length and are designed to meet the different needs of the students of chemistry, medicine, and engineering.

The qualitative analysis begins with the study of those reactions of the elements and their compounds that are used in their detection. This is followed by the practical application of the knowledge thus gained to the analysis of unknown substances, both in the solid form and in solution.

The quantitative work is taken up after the completion of the qualitative course, and comprises a small number of simple gravimetric and volumetric determinations, together with the study of the chemistry of the operations involved. This work in the laboratory is supplemented by lectures and recitations, the latter including practice in writing chemical equations explanatory of the actual operations of the analytical work.

Advanced Quantitative Analysis. For students intending to devote themselves chiefly to the study of chemistry there are provided advanced courses in quantitative analysis, especially designed to give them as wide an acquaintance as possible with analytical manipulation. These courses comprise the determination of the more important elements; the analysis of ores, minerals and alloys; the ultimate analysis of organic substances; agricultural analysis; the chemical and microscopic examination of foods and beverages; the analysis of water; the analysis of iron ores, iron and steel, slags, paints and varnishes, alloys, coal and coke, and a number of other commercial products.

A course of lectures upon selected topics in Advanced Quantitative Analysis is also offered.

Special Courses in Chemical Analysis. These comprise courses in gas analysis, spectroscopic chemical analysis and assaying. Each line of work is given in a laboratory especially designed for its accom-

mmodation and completely fitted with all necessary instruments and apparatus, and is accompanied by a course of lectures introductory to and explanatory of the laboratory work.

Micro-Chemistry. Four courses are offered, the object being to acquaint the student with the microscope and its application to the investigation of chemical phenomena and of problems arising in the industries. A fundamental course upon which the remaining courses are based deals with the microscope and its accessories and microchemical methods, the use of microscopes of various forms and constructions, the application and use of the micropolariscope in its different forms, the microspectroscopic, the micrometer and micro-metric methods, the use of illuminators both vertical and oblique, photo-micrographic stands and cameras, etc. Practice is given in methods of solution, decantation, filtration, crystallization, sublimation and distillation as applied to the examination of minute amounts of material, in the use of elective stains and special reagents, in the making of permanent preparations, in the use of the centrifuge, grinding and polishing machines, etc. Following the instruction in microchemical methods the later courses deal with the analysis of inorganic compounds, organic compounds, alloys, paper, the examination of foods, food products, textiles, etc. A special laboratory has been arranged for microchemical work. It is provided with work tables of special construction placed in windows so as to afford ample light, with work tables of the usual laboratory form along the walls, with gas, blast, water, electric current and electric light. The equipment of this laboratory in apparatus, reagents and material for study is exceptionally complete, rendering the facilities for microchemical research in all branches unexcelled.

Organic Chemistry or the Chemistry of the Compounds of Carbon. Two elementary courses are given in this subject, one extending through the first half-year, the other through the year. The first course is intended for students in medicine and is especially adapted to their needs. The other course is for students specializing in chemistry or those who wish a more extended knowledge of the subject. The method of instruction is the same in both and consists of lectures, recitations and laboratory work, supplemented by frequent written examinations. The lectures are fully illustrated by experiments, specimens of the compounds considered and charts. The laboratory work follows the lectures closely and comprises the preparation and purification of a large number of typical organic compounds and the detailed study of their properties, reactions and relations. The second year's work consists of lectures on special chapters

of the subject and of further laboratory work in the preparation and study of the compounds of carbon of a more complicated nature. Special courses of lectures are also given on the coal tar dyes and on the stereochemistry of the compounds of carbon and of nitrogen. In all the advanced work constant reference is made to the original literature of the subject in the various chemical journals.

Physiological Chemistry. The courses in this subject are especially arranged for students in medicine who have completed the required courses in physiology and chemistry. The method of instruction is by lectures, recitations and laboratory work, accompanied by frequent written examinations. The work comprises the chemistry of the proteids, carbohydrates and fats, the detailed study of the compounds found in the animal organism, and of their reactions and decomposition products. In the laboratory the student separates from the various animal fluids and organs the chemical compounds which they contain, studies their properties, reactions and products of decomposition, and thus familiarizes himself with the methods of isolation and identification of these products. Especial attention is given to the chemistry of digestion and of the products of digestion. In the advanced work some special line of investigation is taken up, such as the repetition of important and extended pieces of work and verification of results already published.

Physical Chemistry. An outline of the more important features of the physical aspect of chemical changes is given in an introductory course of classroom instruction in physical chemistry. This course is followed by lectures on the present state of development of the various phases of the experimental side of the subject: the Gibbsian phase rule, the laws of mass action, the velocity of reactions, and electro-chemistry. Opportunity is given for experimental research in connection with this work, and the general lectures are supplemented by briefer courses on special topics.

Parallel to this group of experimental courses, instruction is given in mathematical chemistry. The aim of this work is to present physical chemistry as a branch of mathematical physics: to develop a coherent body of mathematical theory as the consequence of a small number of inductively established postulates. The treatment is primarily thermodynamical. Two courses are offered: an introductory one, in which the present state of the subject is presented in a connected way; and an advanced course, in which the historical development of the theory is traced.

The results of the experimental and theoretical investigations that are carried on in physical chemistry are published in the *Journal of*

Physical Chemistry, which is issued monthly, during the academic year, by officers of the department.

Sanitary Chemistry, Toxicology. These subjects are taught by several distinct courses of lectures accompanied in each case by laboratory practice. Special laboratories are provided for practical work in sanitary chemistry. These laboratories are exceptionally well equipped with the most modern apparatus, both chemical and optical. Other laboratories are provided for the bacteriological examination of foods, water, etc. The bacteriological laboratories include a general work room with table space for ten students, a sterilizing and preparation room, and an incubator room. The material equipment includes a large and small hot air sterilizer, two steam sterilizers, one large autoclave, two large incubators, and special closets for cultures at room and at low temperatures. These laboratories have been specially equipped with a view to supplying every need for research in water analysis, water purification, and chemical bacteriology. A large collection of pure and adulterated food products supplies material for those desiring to specialize in Board of Health work or in Domestic Economy. The equipment in material and apparatus for the study of chemical toxicology is such as to permit of the detection and determination of the rarer as well as the common poisons of both organic and inorganic origin.

Agricultural Chemistry. An elementary course, consisting of lectures, laboratory practice and recitations, is given during the second half-year. It treats of the fertility of the soil, the relations of soils to plant growth, and the composition of plants and fertilizers. The laboratory practice is intended to familiarize the student with the chemical and physical properties of soils and fertilizers.

Two advanced courses are given during the first half-year : one on dairy chemistry and one on the chemistry of plant and animal life.

A series of elementary lectures is given for the winter course students.

A laboratory course in chemical analysis of agricultural products extends through the year. Special attention is given to the methods of analysis recommended by the Association of Official Agricultural Chemists.

Seminary. A general seminary attended by the members of the staff of instruction in the Department of Chemistry and by graduate students and seniors specializing in chemistry meets once each week throughout the year. Members of the seminary report upon recent advances and selected topics in chemical science.

The Chemical Laboratory. The Laboratory, named Morse Hall,

consists of two buildings, with floor space of over 43,000 square feet. The buildings are connected by corridors on each floor. The laboratory contains four lecture rooms, one seating three hundred and fifty students, another eighty and each of the others sixty-two. These rooms are furnished with all the necessary appliances for the illustration of lectures by experiments and lantern projection, and are provided with adjacent preparation rooms. For elementary work in inorganic chemistry and qualitative and quantitative analysis, there are three large laboratories containing in the aggregate places for seven hundred and thirty-seven students working in sections. In addition to these are two rooms for organic chemistry and a research laboratory for advanced work in that field, one laboratory with one hundred and eight places for physiological chemistry and toxicology, a special laboratory for micro-chemical analysis, two for bacteriological work in connection with the analysis of water and foods, one room for distillation in water analysis, three rooms for assaying, two with northern exposure for gas analysis, a fire-proof room for work with highly inflammable substances, a laboratory for organic ultimate analysis by combustion provided with powerful ventilation and special balances, two hydrogen sulphide rooms connected with strong fan exhaust for work with noxious gases, an electric furnace laboratory, a large room for advanced inorganic chemistry, together with two smaller ones for research work in this field, a room for spectroscopic chemical analysis with a photographic dark room and a mercury-pump room adjoining, a large laboratory for elementary work in physical chemistry, one for electrochemistry, one for undergraduate research and one for graduate work. The student laboratories contain in the aggregate places for one thousand and forty-seven students working in sections, or four hundred and thirty students working at once. In the sub-basement there are two large constant temperature rooms, a dynamo room containing motors and a high pressure blower for air blast, a room for the storage of ores, two others for the storage of highly inflammable chemicals, and a number of stock rooms. A general supply room from which all students draw their chemicals and apparatus for use in their work is situated on the main floor of the building. There are ten private laboratories for professors and instructors. The Chemical Library is centrally located on the first floor of the South Hall of the building. The laboratory of the University Experiment Station is also situated in Morse Hall. Distilled water is conducted in block tin pipes to all the more important rooms on each floor from a tin-lined tank in the upper story of each building. Air blast is conducted wherever required from a high pressure blower in the basement. The

buildings are supplied with an alternating current of 1000 volts and with two direct currents of 500 and 100 volts. Lighter currents for electrochemical analysis and synthesis are furnished by storage batteries.

The Museum contains collections for the illustration of lectures upon inorganic, organic, sanitary, and applied chemistry. These collections include specimens of the elements, their compounds, and the ores from which they are obtained, a complete collection of the most important organic compounds, and also specimens illustrating the leading chemical industries, such as the manufacture of the various acids, alkalies and salts, pigments, glass, pottery, soap, stearine and glycerine, and the chemical processes of metallurgy, bleaching, dyeing, and photography.

The Chemical Library contains complete sets of all the important journals, and is very fully supplied with works of reference and the standard books on chemistry and allied subjects. Such additions are made to it from year to year as are necessary to keep it abreast of the times. It is accessible to all students, under such restrictions only as are necessary to secure it against injury or loss.

The laboratories are open from 8 to 5:30 except on Saturday, when they are closed at 1 o'clock. Instruction hours are from 8 to 1, and 2 to 5.

Fifty-four courses in chemistry are offered as below.

Bracketed courses are not given in 1904-1905.

The following course of study is recommended for students specializing in chemistry, and deviation from the plan should not be made except upon the approval of Professor DENNIS.

	No. of Course.	1st Term.	2d Term.
Introductory Inorganic Chemistry	I	6	-
Qualitative Analysis	7	-	6

Mathematics : Analytic Geometry, Differen-	
tial Calculus, Integral Calculus	10
German or French	I
Physics	2a and 2b
	4
	3
	3
	4

	No. of Course.	1st Term.	2d Term.
Quantitative Analysis	12	6	-
Organic Chemistry	30	6	6
Assaying	18	-	3
Gas Analysis	19	1	-
Gas Analysis	20	2	-
Mineralogy	II	3	3
Spectroscopic Chemical Analysis	17	-	3

Third Year.

	No. of Course.	1st Term.	2d Term.
Introductory Physical Chemistry.....	50	2	2
Physico-Chemical Methods.....	51	3	3
Mechanical Drawing (Sibley College) M.D.	5	3	2
Physics.....	3	2	2

In filling out the remainder of his time in the third year the students should elect from the following courses :

	No. of Course.	1st Term.	2d Term.
Mechanics of Engineering.....	C.E. 20	5	5
Advanced Quantitative Analysis	14b	-	3
Quantitative Analysis, Lectures	15	-	2
Electro-Chemistry for Engineers.....	56a	3	-
Foods and Beverages.....	65	-	2
Potable Water	66	2	-
Water Analysis	70	3	-
Micro-Chemical Methods.....	71	3 or 3	

Fourth Year.

The student is advised to elect the work for the Senior year from the advanced courses in Chemistry and from the following courses offered by other departments :

	No. of Course.	1st Term.	2d Term.
General Economic Geology.....	33	3	3
Electrical Engineering (Sibley Coll.) E.E. II	4	-	-
Steam Machinery (Sibley College) M.E. IO	-	-	4
Mechanical Laboratory (Sibley Coll.) X.E. II	3	-	3

Introductory Inorganic Chemistry.

1. Introductory Inorganic Chemistry. Six hours. First half-year.

(a) Lectures, M., W., F., II, *Ch. L. R.*, I. Professor DENNIS.

(b) Laboratory practice (two periods of $2\frac{1}{2}$ hours each), and one recitation per week. Professor DENNIS and Mr. GERR, Messrs. RAND, STEVENSON and SCHADE.

For students registered in the College of Medicine, the Veterinary College, College of Agriculture, College of Civil Engineering, and Sibley College, at hours as indicated in their respective schedules.

For students registered in the College of Arts and Sciences, at hours to be arranged.

Students in the College of Arts and Sciences, may, if they so desire, elect the lectures alone (credit 3 hours), and may take the recitations and laboratory practice (credit 3 hours) in some subsequent term.

Examinations for those unavoidably absent from the term examination in course 1 or course 2, or who have conditions to remove in either of these courses, will be held at 2:00 P.M. on the day before instruction begins in the Fall, and also in the month of May at a date to be announced. No special examinations will be given at other times.

2. Introductory Inorganic Chemistry. Six hours. Second half-year. This course is identical with course 1.

Analytical Chemistry.

6. Qualitative and Quantitative Analysis. Five hours. First half-year. Required of students in Mechanical Engineering. Lectures, T., Th., 9, *Ch. L. R.*, 1. Laboratory practice, M., W., F., 2-5; or T., Th., S., 10-1.

Qualitative Analysis. Dr. BROWNE and Messrs. BLOUGH, DAVITT, — and —

Quantitative Analysis. Mr. CUSHMAN and Messrs. BLOUGH, DAVITT, — and —

Course 6 is open only to those who have taken course 1 or course 2.

6a. Qualitative and Quantitative Analysis. Second half-year. This course is identical with course 6.

7. Qualitative Analysis. Six hours. Second half-year. Students in science are advised, and those specializing in chemistry are required, to take this course instead of the qualitative analysis of course 6. Lectures, T., Th., 9, *Ch. L. R.*, 1. Laboratory practice, M., F., 11-1, and T., Th., 2-4:30. Dr. BROWNE.

This course is open only to those who have had course 1 or course 2.

8. Qualitative Analysis. Second half-year to April 22nd. Credit two hours. Required of students in medicine. Lecture, S., 12, *Ch. L. R.*, 3. Dr. BROWNE. Laboratory practice, W., 10-1, and Th., 8-10. Dr. BROWNE, and Messrs. BLOUGH, DAVITT, — and —

This course follows course 1, and is followed by course 68.

12. Quantitative Analysis. Six hours. First half-year. Elementary course for those who have had course 7. Lectures and recitations. M., W., 10, *Ch. L. R.*, 2. Laboratory practice, T., Th., 2-5, and W., F., 11-1. Mr. CUSHMAN and Mr. ROBINSON.

14. Quantitative Analysis. Advanced course. Open only to those who have had courses in qualitative analysis and elementary quantitative analysis. Mr. CUSHMAN and Mr. ROBINSON.

a. General inorganic, and ultimate organic analysis.

b. Technical and engineering analysis. Iron ores, iron and steel, slags, paints, lubricants, coal and coke, cements and cement materials, alloys, ores of copper, lead, zinc, mercury, manganese, and tin, etc.

15. Quantitative Analysis. Two hours. Second half-year. Lectures on selected topics in advanced quantitative analysis. T., Th., 8, *Ch. L. R. 2.* Open only to those who have had courses in Qualitative Analysis and elementary Quantitative Analysis. Mr. CUSHMAN.

17. Spectroscopic Chemical Analysis and Colorimetry. Easter recess to end of year. Credit, three hours. Lectures, T., Th., 11, *Ch. L. R. 3.* Mr. GEER.

Laboratory practice (6 actual hours), at hours to be arranged. Mr. GEER and Mr. HAWLEY.

The laboratory instruction comprises the observation and mapping of emission spectra with the Krüss spectroscope and direct vision spectroscope, the qualitative analysis of unknown mixtures and of minerals with each of these instruments, the spark spectra and oxyhydrogen spectra of minerals, the spark spectra of liquids and gases, the absorption spectra of certain colored solutions, of solutions of the rare earths and of organic dyes, and colorimetric determinations with the latest and most exact instruments.

18. Assaying. Six hours. Second half-year until Easter recess. Credit, three hours. Lectures and laboratory practice. Lectures, T., Th., 11, *Ch. L. R. 3.* Laboratory practice at hours to be arranged. Mr. CUSHMAN.

The course comprises lectures upon the theory and practice of the scorification and crucible assay, and upon the metallurgy of copper, lead, silver and gold. In the laboratory, practice is given in the assay of gold, silver and lead ores, and of bullion. The course should be preceded by elementary courses in qualitative and quantitative analysis.

19. Qualitative and Quantitative Gas Analysis. One hour. First half-year. Lecture. M., 11, *Ch. L. R. 3.* Dr. BROWNE.

20. Technical Gas Analysis. Two hours. First half-year. Laboratory practice. Instruction is given in the analysis of gas mixtures with the apparatus of Honigmann, Bunte, Orsat, Lunge and Hempel, in the complete analysis of illuminating gas, generator gas, acetylene and air, the determination of the heating power of gaseous, liquid and solid fuels, and in the evaluation of nitrates with the nitrometers of Hempel, Lunge and Bodländer. Dr. BROWNE and Mr. HAWLEY.

Organic Chemistry.

30. Organic Chemistry. Six hours throughout the year. Lectures and written reviews. M., W., F., 9, *Ch. L. R. 3.* Professor ORNDORFF. Laboratory practice ($7\frac{1}{2}$ actual hours) at times to be arranged within the following periods: M., W., F., 2 to 5.30; S., 8 to 1. Professor ORNDORFF, Mr. PARTRIDGE, and Mr. DELBRIDGE.

Course 30 is required of all students specializing in chemistry. It is open only to those who have had courses 1 and 6, or 1 and 7, and are taking course 12. The lectures and written reviews serve as an introduction to the general subject of the chemistry of the compounds of carbon. In the laboratory the student prepares a large number of typical compounds of carbon, and familiarizes himself with their properties, reactions and relations.

31. **Organic Chemistry.** Three hours throughout the year. Lectures and written reviews. M., W., F., 9, *Ch. L. R.* 3. Professor ORNDORFF.

This course is identical with the lectures and written reviews of Course 30.

32. **Elementary Organic Chemistry.** Three hours. First half-year. Lectures and written reviews. M., W., Th., 12, *Ch. L. R.* 3. Professor ORNDORFF.

This course is required of second year students in medicine, and is preparatory to Course 40.

32a. **Elementary Organic Chemistry.** Two hours. Second half-year. Lectures and written reviews. M., W., 12, *Ch. L. R.* 3. Professor ORNDORFF.

This course is required of first year students in medicine, and is preparatory to Course 40.

33. **Special Chapters in Organic Chemistry.** Two hours throughout the year. Lectures, T., Th., 9, *Ch. L. R.* 3. This course is open only to those who have completed courses 30 and 31. In this course especial attention is given to certain important chapters of organic chemistry, for which an elementary knowledge of the subject is necessary. Frequent references are made to the original literature, and an attempt is made to acquaint the student with the classical researches of organic chemistry. Professor ORNDORFF.

34. **Advanced Organic Chemistry.** Laboratory practice. Hours to be arranged. The course in the preparation of organic compounds is here continued, the preparations, however, being more difficult and requiring more experience and skill on the part of the student. The original literature is consulted, and the student is finally required to repeat some extended and important piece of work, and to compare his results with those published, before taking up original work in this field. Professor ORNDORFF and Mr. PARTRIDGE.

35. **The Coal Tar Dyestuffs.** One hour. First half-year. Lectures. Th., 11, *Ch. L. R.* 2.

The coal tar dyestuffs have become so important, from both a theoretical and practical standpoint, as to justify their consideration in a

separate course of lectures. The methods of making the dyestuffs, their properties, constitution and relation to each other are discussed, the treatment being scientific rather than technical. Professor ORNDORFF.

36. **Stereochemistry.** One hour. Second half-year. Lectures. Th., II, *Ch. L. R. 4.*

The stereochemistry of the compounds of carbon and nitrogen form the subject of this course of lectures. The necessity of considering the space relations of the atoms in certain classes of physical isomers is shown and the close agreement of the facts and theory is brought out. Professor ORNDORFF.

Physiological Chemistry.

40. **Physiological Chemistry.** Two hours. Second half-year. Lectures and written reviews. M., W., 8, *Ch. L. R. 3.* Mr. PART-RIDGE.

This course is the continuation of course 32, and is required of students in medicine.

41. **Physiological Chemistry.** Three hours. Second half-year. Laboratory practice. Professor ORNDORFF and Mr. PARTRIDGE.

This course is required of students in medicine.

42. **Physiological Chemistry.** Advanced course. Laboratory practice. Hours to be arranged. Professor ORNDORFF.

Inorganic Chemistry.

[45. **History of Chemistry.** Two hours. First half-year. Lectures. T., Th., II, *Ch. L. R. 3.*]

For all students intending to specialize in chemistry. The general subject is divided into topics each of which is treated continuously from the beginning to the end of its history: biographies of chemists whose work has been prominent in any topic are given in connection with that topic.

This course must be preceded by courses 1, 7, 12 and 30.]

46. **Inorganic Chemistry.** Advanced course. Two hours. Second half-year. Lectures. T., Th., II, *Ch. L. R. 1.* Professor DENNIS.

The chemical elements are discussed in the order in which they occur in the Periodic Law of Mendeléeff, and especial consideration is given to the group properties of the elemental substances and to the relations of the groups to one another. The rare elements and "rare earths" are treated in as great detail as are the more common elements. The lectures are fully illustrated by experiments.

The course is open to those who have completed courses 1, 7, 12 and 30.

47. **Inorganic Chemistry.** Laboratory practice. Hours to be arranged. The preparation and purification of inorganic compounds and the extraction of the rarer elements from ores and minerals. Professor DENNIS.

Course 47 is designed to accompany course 46, but either course may be taken separately.

Physical Chemistry.

The following courses in physical chemistry are open to students specializing in chemistry who have completed courses 1, 7, and 12, but may be taken by students of other departments who have had introductory courses in chemistry and physics.

50. **Introductory Physical Chemistry.** Two hours throughout the year. Lectures. M., F., 8, *Ch. L. R. 4.* Dr. CARVETH.

The object of this course is to give a simple systematic presentation of modern chemical theory. The effect of the variables met in chemical work is studied in detail; from a consideration of typical cases many of the laws of chemistry are derived, and the methods employed in chemical practice critically examined.

51. **Physico-Chemical Methods.** Three hours a week. Laboratory practice. Dr. CARVETH.

Special attention is directed to sources of error in experimental work and calibration of instruments. The subject matter includes: methods of observation; calculation of error; the balance; accurate determination of temperature and thermal effects; pressures and volumes; molecular weight by vapor density and other methods; viscosity and capillarity; formation, separation, and identification of phases, including fractionation methods; study of optical, photochemical, electrical, and magnetic effects.

[52. **Advanced Physical Chemistry.** Three hours throughout the year. Lectures and recitations. Must be accompanied or preceded by courses 30 and 31. M., W., F., 10, *Ch. L. R. 4.* Professor BANCROFT.

A non-mathematical exposition of the law of mass action in its application to chemical equilibrium, to velocities of reaction, and to electromotive forces. These lectures should be supplemented by at least two hours per week of laboratory practice, course 57.]

53. **Mathematical Chemistry.** Three hours per week, at times to be arranged. Lectures, colloquia, and problems for practice. Professor TREVOR.

This study of the thermodynamic theory of chemical equilibria comprises: (a) the general principles of thermodynamics; (b) applications of these principles to the thermodynamic behavior of one-component systems, including the phenomena of vaporization, fusion, transformation of allotropic forms, abnormal vapor densities, critical states, etc.; (c) applications to two-component systems, including the theory of solutions, the study of solubility curves, the theory of binary dissociation, and that of critical phenomena, etc.; (d) the corresponding applications to the three-component systems. The course presupposes an acquaintance with differential and integral calculus.

54. **Advanced Mathematical Chemistry.** Three hours. A more detailed course in the thermodynamic theory of chemical equilibria, carried through in connection with supplementary reading and the study of new problems. Calculus is a prerequisite. Professor TREVOR.

55. **Electrochemistry.** Two hours throughout the year. Lectures. T., Th., 10, *Ch. L. R.*, 4. The historical development of the subject with special reference to the theory of the voltaic cell. For advanced students in physical chemistry and physics. Professor BANCROFT.

56. **Physical Chemistry for Engineers.** Intended primarily for students in electrical engineering and technical chemistry. Any one of the three divisions may be elected, independently of the others.

(a) **Electrochemistry.** Three hours. First half-year. Lectures. M., W., F., 9, *Ch. L. R.*, 4. Electrolytic extraction and refining of metals; theory of plating; the preparation of compounds in the electric furnace; electrolytic manufacture of inorganic and organic compounds; theory and practice of storage cells. Students taking this course are recommended to supplement the lectures by laboratory practice, course 56 (c). Professor BANCROFT.

(b) **Technical Physical Chemistry.** Three hours. Second half-year. Lectures. M., W., F., 9, *Ch. L. R.*, 4. The work deals with the physical and chemical nature of materials, reactions and separations, methods of construction, comparison and choice of method, and study of waste products. Dr. CARVETH.

(c) **Electrochemistry.** Two hours throughout the year. Laboratory practice. Preparation of electrical standards and measurement of electrical constants; qualitative study of conditions affecting electrolytic reactions; determination of current and energy efficiencies in electrolytic and electrothermal work; preparation and tests of storage batteries; electrolytic preparation of organic compounds. Students

are advised to take this course in connection with course 56 (a). Professor BANCROFT and Mr. SNOWDON.

57. Laboratory Practice. Advanced course. Hours and work to be arranged. Students may elect work in mass law, reaction velocity, efficiency, conductivity, electrometric, high and low temperature measurements with special reference to course 52; in electrometric determinations with special reference to course 55; in electrochemical synthesis with special reference to course 56; or in advanced problems and research work. Professor BANCROFT and Dr. CARVETH.

Sanitary Chemistry, Toxicology, and Microchemical Analysis.

(The courses under this heading, with the exception of courses 67 and 68, are open only to those who have had courses in Introductory Inorganic Chemistry and Elementary Qualitative and Quantitative Analysis.)

65. Foods and Beverages. Two hours. Second half-year. Lectures. W., F., 12, *Ch. L. R.*, 2. Chemical composition, preparation for use, nutritive and calorific values, assimilability or digestibility, adulterations, preservatives, and their effects, dietaries and dietary standards, food economics. Assistant Professor CHAMOT.

66. Potable Water. Two hours. First half-year. Lectures. W., F., 12, *Ch. L. R.*, 2. Sources of potable water; how polluted; agencies at work leading to the "natural" or "self" purification of streams, etc., and what they accomplish; the data necessary for a decision as to the fitness of a water for household use; the interpretation of the results of water analyses, chemical, microscopical, and bacteriological. Modern methods of water purification. Assistant Professor CHAMOT.

67. Toxicology. February 4 to May 10. Credit, one and one-half hours. Lectures. M., W., 9, *Ch. L. R.*, 2. A brief review of the present ideas as to the classification, mode and cause of action, and method of elimination of poisonous substances, together with a discussion of some of the methods employed for their separation and identification. Assistant Professor CHAMOT.

This course is intended for students in Veterinary Medicine.

68. Toxicology. One hour. April 27th to end of year. Laboratory practice. W., 10-1; Th., 8-10; Th., 5. This course has been planned to meet the needs of the students in the College of Medicine, and is intended to serve as an introduction to the methods employed for the separation and identification of the common poisons. Assistant Professor CHAMOT and Mr. LENK.

This course is open only to those who have completed the courses in chemistry required of first year students in medicine.

69. Food Analysis. Three hours. Second half-year. Laboratory practice. Instruction is given in the examination of foods by chemical and optical methods, with reference to adulteration, imitation, and alteration; the examination of foods for artificial coloring matters, preservatives, and poisonous substances. This course comprises a study of milk, infant and invalid foods, comestible fats and oils, cereal products and starchy foods, canned goods, jellies, etc. The course may be extended so as to include the analysis of alcoholic beverages. Assistant Professor CHAMOT and Mr. LENK.

70. Water Analysis. Three hours. First half-year. Laboratory practice. Instruction in the methods employed for the examination of waters with reference to their fitness for household purposes, steam boilers, etc. The testing of filters and water purifying devices for efficiency. Assistant Professor CHAMOT and Mr. LENK.

Course 66 should be taken in connection with course 70.

71. Microchemical Methods. Three hours, either term. Laboratory practice. The aim of this course is to familiarize the student with the use of the microscope and its accessories, and with microchemical methods and apparatus as applied to chemical investigations. Assistant Professor CHAMOT.

72. Microchemical Analysis. Elementary course. Three hours, either term. Laboratory practice. Practice in the examination and analysis of inorganic substances containing the more common elements, with reference to rapid qualitative methods and the analysis of minute amounts of material. Assistant Professor CHAMOT.

This course must be preceded by Course 71.

73. Microchemical Analysis. Advanced course. Hours to be arranged. Laboratory practice. This course may be arranged so as to comprise the analysis of inorganic substances containing the rarer elements or of organic compounds, or the work may, if desired, be devoted to investigation. Assistant Professor CHAMOT.

Course 73 must be preceded by Courses 71 and 72.

74. Microscopical Examination of Foods. Two hours, either term. Second half-year. Laboratory practice. Instruction in the use of the microscope in the examination of foods and condiments for the purpose of detecting adulterations and admixtures. Assistant Professor CHAMOT and Mr. LENK.

This course should be preceded by Course 71.

Agricultural Chemistry.

80. Agricultural Chemistry. Christmas recess to Easter recess. Elementary course, for students in special short course in Agriculture. T., Th., 10, Ch. L. R., No. 2. Assistant Professor CAVANAUGH.

81. Agricultural Chemistry. Six hours. Second half-year. General course. Three lectures, M., W., F., 11, *Ch. L. R.*, No. 4. Two laboratory periods and one recitation. Assistant Professor CAVANAUGH.

This course treats of the "Fertility of the Land," and deals with such subjects as the composition of plants, the sources of their food, the chemical and physical properties of soils, and the composition and behavior of fertilizers and manures.

This course is open only to those who have had course 1.

82. Agricultural Chemistry. Two hours. First half-year. Advanced course. Lectures, W., F., 12, *Ch. L. R.* No. 4. Assistant Professor CAVANAUGH.

83. Agricultural Analysis. Hours by appointment. First half-year. Laboratory practice. Foods and feeding stuffs, sugar beets and sugar house products, and dairy products. Assistant Professor CAVANAUGH.

This course is open only to those who have had courses 1 and 6.

84. Agricultural Analysis. Hours by appointment. Second half-year. Laboratory practice. Soils, fertilizers, insecticides, and fungicides. Assistant Professor CAVANAUGH.

This course is open only to those who have had courses 1 and 6.

85. Dairy Chemistry. Two hours. First half-year. Lectures, W., F., 10, *Ch. L. R.* No. 3. Laboratory practice in Dairy Chemistry is given in course 83. Assistant Professor CAVANAUGH.

Seminary.

90. Seminary. One hour per week throughout the year. Credit, one hour.

This is a general seminary in which graduate students with major subjects in chemistry and seniors specializing in chemistry are expected to take part.

BOTANY.

The instruction in this department is offered at present in 19 courses. Courses 1 and 2 form a one year's course and are designed to lay the foundation for the advanced courses, as well as to present to the student a general outline of the principles of botanical science. Course 3 is designed especially for the needs of the students in civil engineering, where a knowledge of timber structure, strength of material as related to different kinds of timber tissue, and the diseases of timber, are important.

The advanced courses in comparative morphology and embryology, comparative histology, mycology, and physiology, are intended to lay

the foundation for independent investigations in these subjects as well as to present in a logical way the fundamental principles of development, relationship and phylogeny, as applied in these topics. Aside from the elementary courses these subjects are especially recommended to students who are fitting themselves for teachers, since a grasp of the principles underlying them is needed for the proper and thorough presentation of the elementary principles of botany. In the work of these courses each of the students gradually accumulates a set of permanent microscopic preparations which can be kept for future reference and demonstrations before the classes.

The flora of the region of Ithaca is very rich in species, and offers excellent opportunities for the student of systematic botany, and some facilities in the study of geographic botany. Excellent facilities are offered to the students who are fitting themselves for [experiment] economic work in the course in plant histology, plant physiology, and in the study of the fungi. While the laboratory is distant from the seashore it is well supplied with material of the marine algae for morphological and development study of typical forms.

The laboratory is well equipped with microscopes, microtomes, photographic apparatus, thermostats, sterilizers, culture rooms, an electric lantern and a large number of views for illustrating portions of the lectures, the Auzoux and Brendel models representing the different groups of plants, and other illustrative material in the way of charts, maps, etc. The large green houses connected with Sage College adjoin the rooms of the department, and are filled with many exotics representing the Pteridophytes, Gymnosperms and Angiosperms, and offer available material at all seasons for studies in development, and histology, and furnish living plants for illustrative material for many of the lectures. Space is devoted to the study of plant growth, physiological experiments, and for the handling and treatment of greenhouse plants, the latter being in charge of the head gardner of the department. The department also contains a large and growing herbarium, as well as collections of fruits, cones, nuts, fibres, a general collection of economic products, and a large number of specimens of the woods of different countries.

Courses 1, 2, 3, 5, may be elected in the Freshman year. Those desiring to specialize in botany are advised to take courses 1 and 2 in the first year.

I. General Courses.

(Courses 1 and 2 form a continuous course through the year.)

i. General Comparative Morphology and Physiology of Plants. Credit, 3 hours first term, 1 hour second term. First half-

year, and second half-year until March 25. A study of representative plants of various groups, and of the fundamental principles of plant life and relationship. Lectures, M., II. Laboratory practice and demonstrations, 1st section, T., 2-5 and W., II-I; 2nd section, Th., 2-5, and F., II-I. One forenoon and one afternoon session must be taken each week. Students in agriculture register in the second section (Thursday and Friday); other students register in either section. Professor ATKINSON, Dr. DURAND and Miss CIPPERLY.

2. **Special Morphology, Taxonomy and Adaptation of Higher Plants.** Continues from course 1. Second half-year beginning March 27. Credit 2 hours second term. Studies of typical plants representing the more general groups of angiosperms. Field excursions for the purpose of studying the local flora. Lectures M., II. Laboratory work in sections as in course 1. Assistant Professor ROWLEE, Dr. WIEGAND and Miss CIPPERLY.

3. **Special Course in Dendrology for Engineers.** First half-year. Two hours. The Morphology and Taxonomy of trees. The structure and development of wood. The qualities and use of woods. Up to Christmas vacation. T., Th., 10-II. Assistant Professor ROWLEE and Mr. LEWIS. The diseases of timber and forest trees. Christmas vacation to midwinter recess. M., W., 9-10. Professor ATKINSON and Mr. JACKSON. (Required of Civil Engineers, and open to election without any prerequisite in Botany, to those interested in these problems.)

5. **Geographical Botany.** Second half-year. Lectures, S., 9. Laboratory exercises and excursions, F., 2-5 and S. The distribution of plants over the surface of the earth. Practical field studies in plant distribution; also the preparation of an herbarium representing the local flora. Photographs are used to illustrate the distribution of plants. Assistant Professor ROWLEE and Mr. LEWIS.

6. **Exotics.** One or two hours. The conservatory in connection with the department offers excellent opportunities for students who wish to become familiar with practical methods in propagation and cultivation of conservatory plants, and in practical greenhouse work. Mr. Shore, the expert gardener, will have charge of the instruction and practical work. Students desiring to take this course should consult Professor ATKINSON, who will have charge of conference and reports. Hours by appointment.

II. Advanced Undergraduate Courses.

These advanced courses may be elected in any order which the student chooses, the only prerequisite being courses 1 and 2. They are also open to election by graduate students.

Comparative Histology and Systematic Botany.

7. **Taxonomy and Phylogeny of Angiosperms.** Three hours through the year. Lectures, T., 9. Laboratory work by appointment. A study of the genetic relationships of the phanerogamous orders. Practical studies in the laboratory of groups illustrating the principles of natural classification. Assistant Professor ROWLER.

8. **Comparative Histology of Plants.** Three hours through the year. Introduction to methods of investigation. Studies of the vegetable cell, its multiplication and contents. The development of primary tissues. Kinds of tissue. Comparative study of vascular tissue. Secondary thickening. Lectures, F., 9. Laboratory work, Friday afternoon and Saturday morning. Dr. WIGAND.

9. **Dendrology.** Three hours through the year. A biological and taxonomic study of trees, including field observations upon the native species, and laboratory investigations upon the structure and development of woody structures. Prerequisites, course 1 and 2. Course 5 may advantageously precede this course. Lectures, T., 8. Laboratory work, Friday afternoon and Saturday morning. Assistant Professor ROWLER and Mr. _____.

Not given in 1904-5, but offered in 1905-6.

Comparative Embryology, Mycology and Kindred Subjects.

10. **Comparative Morphology and Embryology.** Three hours through the year. A study of representative groups which illustrate the line of evolution of green plants. Especial attention will be given to tracing the development and homologies of sporogenous, reproductive and embryological organs, with discussions of the principal plant phyla. Permanent microscopic preparations will be made, representing series in the liverworts, mosses, ferns, gymnosperms, and angiosperms. In the fall the chief attention will be given to the Bryophyta, the winter will be devoted principally to the Pteridophyta, followed by the gymnosperms and angiosperms in the spring. The course is continuous, and because of the logical sequence of the subjects, must be taken in the order presented. Lectures, Th., 12. Laboratory work Monday and Wednesday afternoons. Professor ATKINSON and Dr. DURAND. Prerequisites, courses 1 and 2. Offered in 1905-6; alternates with course 12.

11. **Mycology.** Three hours through the year. First half-year until Christmas recess. *Basidiomycetes*; studies of representative genera of this large group, with especial attention to the structure and characters of edible and poisonous mushrooms and wood-destroying

fungi. The equivalent of one weekly laboratory session will be devoted to field work in the collection of material. Christmas recess until Easter Recess, Parasitic Fungi; the history and development of the most important parasitic fungi. Second half-year after Easter recess, general classification with studies in representative groups, and practice in culture methods. Practice in the recognition of species, or research work may in some cases be taken as a parallel course by registering in course 14a. Lectures, T., 12; laboratory work Monday and Wednesday afternoons. Professor ATKINSON, and Mr. JACKSON. Prerequisites, courses 1 and 2.

12. Taxonomy of the Pteridophytes, Bryophytes, and Algae. Three hours throughout the year. Lecture, one hour, Th., 12. Laboratory, two hours, Friday afternoon and Saturday morning. The Laboratory work will consist of a study of typical genera, practice in taxonomy, and field work. Dr. DURAND. Offered 1904-5. Alternates with Course 10.

III. Graduate Courses.

(Primarily for graduates: but open to election by undergraduate students engaged in research.)

To those electing any of the graduate courses for an advanced degree the following general announcement applies. A fourhour course is the minimum period and if the subject is chosen for a major study, or as a minor, for the master's degree, more time will be required.

Comparative Morphology and Embryology, Mycology, etc.

13. Methods of research in morphology and embryology. Not less than four hours. Each student will be assigned some problem for original research with special reference to sporogony or embryology, and the morphology of the nucleus with reference to sporogenesis, spermagensis, oogenesis, and fertilization ; or some problem in experimental morphology. The research will be made the basis for acquaintance with methods, and a thesis embodying the results will be prepared. The work should follow course 10, but in special cases may be taken as a parallel study. When these subjects are chosen as a major or minor for an advanced degree they can be pursued for several years according to the needs of the case. Reports weekly. Hours by appointment. Professor ATKINSON and Dr. DURAND.

14. Methods of research in mycology. The problems will be assigned according to the needs and capabilities of the student. In general it will be found desirable to devote a first period to an independent survey of the group of fungi in the collection of material and

in general taxonomic work on the same to acquire a practical knowledge in the placing of genera and species in the various groups. From this point research on some problem can be directed to some monographic work, either in taxonomy, taking up one or more genera according to the number of species; or in development of a few species; or in problems of plant pathology. The periods are arranged as follows, but are subject to change in special cases:

14a. General taxonomic survey of the fungi. Four hours through the year; or eight hours for the first half year of the year. Should follow course 11, or in special cases may be taken as a parallel course. Hours by appointment. Professor ATKINSON and Mr. JACKSON.

14b. Research; monograph of some genus or a limited number of genera; or some monographic study of development, or of plant pathology; through the year, and where the problem is selected as a major study more time will be required. In any case a thesis combining the results of the investigation will be required. Reports weekly. Hours by appointment. Professor ATKINSON.

Plant Physiology.

15. Plant Physiology. Not less than four hours, but when chosen as a major study, more time will be required. Problems will be assigned for investigation, dealing with the physical properties of growth; with nutrition; with the effects of stimuli and certain natural and environmental forces upon cell activities, plant growth, development, etc. Each student will be required to prepare a thesis embodying the results of his investigations. Prerequisites, courses 1 and 2, and in addition, one of courses 8, 10, or 11 (or an equivalent). Hours by appointment. Professor ATKINSON and Mr. BURNHAM. Weekly reports may be required.

Comparative Histology and Systematic Botany.

16. Research in Taxonomy and Phylogeny of the Angiosperms. Four or more hours. A monograph of some group which will include a comparative study of organs of taxonomic value, and also their development. Groups will be assigned for investigation preferably in the spring of the year before the course is to be taken up. Among the groups which may be taken up are the glume-bearing Monocotyledons (grasses, sedges, etc.), the amentiferous Dicotyledons, and the Compositae. Since different groups will be taken up in different years, students may pursue the work outlined in this course more than one year. Designed for those who have taken

courses 7 and 8, or in special cases, permission will be given to take these as parallel courses. Hours by appointment. Assistant Professor ROWLEE.

17. **Research in Comparative Histology and Cytology.** Not less than four hours. Special problems. (a) Comparative histology: the comparative histology of a series of organs, or the anatomy of an individual plant. (b) Cytology: the biology and structure of starch, plastids, and other cell contents; also nuclear division and cell formation, with special reference to tissue development. Intended to follow course 8, and may form the basis of a major or minor subject for an advanced degree. Assistant Professor ROWLEE and Dr. WIEGAND.

IV. Botanical Seminaries.

18. **Seminary in Embryology, Mycology, Physiology, etc.** Weekly seminaries will be held in embryology, comparative morphology, mycology, physiology and related subjects. Readings and discussions of current literature; and problems under investigation will form the basis for the seminary work. Required of all graduates and open to undergraduates who are engaged in research (one hour). By appointment. Professor ATKINSON.

19. **Seminary in Comparative Histology and taxonomy of the Angiosperms.** Weekly seminaries will be held in these subjects. Readings and discussions of current literature; and problems under investigation, courses 16, 17, will form the basis for the seminary work. Required of all graduates, and open to all undergraduates who are engaged in research work (one hour). By appointment. Assistant Professor ROWLEE.

ENTOMOLOGY AND GENERAL INVERTEBRATE ZOOLOGY.

The scope of the instruction in this department is indicated by the title of the department; elementary courses are given in the general subject of invertebrate zoology, and special courses, both elementary and advanced in entomology. An opportunity is offered the student to lay a broad foundation for zoological studies by lectures covering in a general way the field of invertebrate zoology, and by a study in the laboratory of a wide series of typical forms, illustrating the more important groups of Invertebrates. These two courses taken in connection with similar courses offered by the Department of Physiology and Vertebrate Zoology afford the instruction in zoology needed by students in the general courses and serve as an introduction to the

more advanced work of those who wish to make a special study of zoology.

Owing to the difficulty of studying marine animals at any place remote from a sea coast and to the exceptionally good facilities for the study of insects at this University, those students wishing to take advanced work in invertebrate zoology here are advised to select some subject in entomology, and especial encouragement is given to those students wishing to make original investigations in this field. An important feature of this department is a summer session consisting of lectures, field work, and laboratory practice, at the season of the year most favorable for the study of insects.

The Museum and Laboratory. The material equipment of the department for the study of General Invertebrate Zoology consists of a museum in which there is a good series of Invertebrates, including an excellent collection of corals and a very large collection of shells, the Newcomb Collection. The museum also contains the complete series of glass models of invertebrates made by Blaschka, the papier maché models of Auzoux, and a complete set of the zoological diagrams of Leuckhart. The laboratory is kept supplied with specimens of the typical marine forms studied by the students. These are supplied to the students at cost.

The entomological cabinet contains, in addition to many exotic insects, specimens of a large proportion of the more common species of the United States. These have been determined by specialists, and are accessible for comparison. The collection includes many sets of specimens illustrative of the metamorphoses and habits of insects. The laboratory is also supplied with a large collection of duplicates for the use of students; and is equipped with microscopes and other apparatus necessary for practical work in entomology.

The insectary of the Agricultural Experiment Station affords facilities to a limited number of advanced students for special investigations in the study of the life history of insects, and for experiments in applied entomology.

The following courses are offered in 1904-1905:

1. **Invertebrate Zoology.** General course. First half of the first half-year. Credit, 2 hours. M., W., F., 10, *White* 12. Professor COMSTOCK; and one practical exercise by the class in sections. First section, W., 2-4:30; second section, F., 2-4:30, *White* 20. Messrs. MACGILLIVRAY, RILEY, and BRETTEN.

This course is followed by course 2 in Vertebrate Zoology, which occupies the corresponding hours in the last half of the first half-year.

2. **Morphology of Invertebrates.** Special laboratory course. M., 8-5; Th., 8-1, *White* 20. Mr. MACGILLIVRAY.

3. **General Entomology.** Lectures on the characteristics of the orders, sub-orders, and the more important families and on the habits of representative species. Second half-year. Credit 2 hours or 3 hours. M., W., 10, *White 12*. Professor COMSTOCK; and one practical exercise in sections for those who have not had courses 4 and 5. W., F., 2-4:30, *White 20*. Messrs. MACGILLIVRAY, RILEY, and BETTER.

Course 3 is open only to students who have taken course 1.

4. **Elementary Morphology of Insects.** Laboratory work. First half-year. Credit, 3 hours. M., T., 8-5; W., Th., F., 8-1, *White 20*. Messrs. MACGILLIVRAY and RILEY.

5. **Elementary Systematic Entomology.** Laboratory work. Credit, 2 hours. M., T., 8-5; W., Th., F., 8-1, *White 20*. Messrs. MACGILLIVRAY and RILEY.

Course 5 is open only to students who have taken course 4, and are taking or have taken course 3.

6. **Advanced Systematic Entomology.** Laboratory work. Credit, 3 hours. M., T., 8-5; W., Th., F., 8-1, *White 20*. Messrs. MACGILLIVRAY and RILEY.

7. **Histology of Insects.** Laboratory work. Introductory course. T., 8-5; W., F., 8-1, *White 20*. Mr. RILEY.

Course 7 is open only to students who have taken courses 4 and 5.

8. **Economic Entomology.** Lectures and field work. Discussion of the more important insect pests and of the methods of combating them. At opportune times the class will be taken into the field in sections to observe insect pests at work. Second half-year. Credit, 2 hours. T., Th., 10, *White 12*. Assistant Professor SLINGERLAND.

9. **Advanced Economic Entomology.** Lectures, seminary and field work. Economic problems connected with applied entomology discussed, reported upon, and field observations made. Experimental methods in breeding, photographing, investigating and combating insects discussed and studied. Second half-year. Credit, 1 hour. One afternoon a week by appointment. *Insectary*. Assistant Professor SLINGERLAND.

Course 9 is designed for advanced students who desire to fit themselves for Experiment Station work. The course is open only to students who have taken Courses 1, 3, 4, 5, and 8.

10. **Classification of the Coccidae.** A course designed to familiarize the student with the more injurious species of scale insects, the method of preparing specimens for study, and the systematic arrangement of the species. Lectures and laboratory work. Second half-

year at hours to be arranged. *White* 20. Credit, 2 hours. Mr. MACGILLIVRAY.

Course 10 is open only to students who have had courses 4 and 5.

11. Morphology and Classification of the Arachnida. Special laboratory course. M., T., 8-5; W., Th., F., 8-1, *White* 20. Professor COMSTOCK, and Messrs. MACGILLIVRAY and RILEY.

12. Morphology and Development of Insects. Lectures and demonstrations. Second half-year. F., 10, *White* 12. Credit, 1 hour. Professor COMSTOCK and Mr. RILEY.

Course 12 is open only to students who have taken courses 1, 3, 4, and 5. Students are advised to take course 7 also before taking this course.

13. Research in Entomology. Advanced laboratory course, special work arranged with reference to the needs and attainments of each student. M., T., 8-5; W., Th., F., 8-1, *White* 20. Professor COMSTOCK and Messrs. MACGILLIVRAY and RILEY.

14. Seminary. The work of an entomological seminary is carried on by the *Jugate*, an entomological club which meets for the discussion of current literature and of the results of investigations. Attendance at the meetings may be counted as laboratory work. M., 4-5. *White* 12.

Summer Term.

After 1904 the summer term in Entomology will be discontinued as a distinct term; but courses in Entomology will be offered in the Summer Session.

PHYSIOLOGY, VERTEBRATE ZOOLOGY, AND NEUROLOGY.

Courses 1 to 7 are open to Freshmen.

The laboratories and lecture-rooms of the department occupy the entire north wing of McGraw Hall. The museum is in the centre of the building on the main floor and in the first gallery.

Course of Instruction. With all, practical work constitutes an essential feature. With the first three, Physiology, Vertebrate Zoology, and Neurology, one-third of the exercises are in the form of practicums, the objects being studied by the students in groups under constant supervision and with explicit directions. In the other courses the laboratory work is adapted to the needs of the individual.

The Museum. In its formation there has been kept in mind constantly its main purpose as an aid to instruction, elementary and advanced. Merely curious, showy or costly specimens have not been

sought. But efforts have been made to obtain from all parts of the world representative forms of the various vertebrate groups, and by means of carefully prepared specimens, to illustrate ideas, *e. g.*, the adaptation of structure to function; the persistence of apparently useless or injurious organs; the unity of type under diversity of external form and mode of life; the relationship of man to the apes, etc. The collection embraces an unusual number (about 1500) of well-preserved and prepared brains of man and other vertebrates. The local fauna is already represented by about 250 species, of which 62 are fishes and about 150 are birds; it is believed that at least 350 different vertebrates inhabit the neighborhood of Ithaca.

The Vivarium. There is as yet no special provision for a zoologic garden, but living animals of moderate size and cost are kept in the basement of McGraw Hall, and are accessible at all times to students and visitors. During 1899-1900 the forms were as follows: Monkey, cat, fox, raccoon, ferret, porcupine, mouse, squirrel; crow, pigeon, parrot; alligator, heloderma (*Gila monster*), serpents and turtles; frogs, salamanders and *necturus*; lake lamprey, *amia*, gar, stickleback, catfishes, perch, suckers, sunfish, etc. On the upper floor are maintained aquaria in connection with the course in Systematic and Economic Zoology.

Opportunities for Research. Besides ordinary forms, there are readily obtained living *necturus*, *amia*, and two kinds of lamprey. The Brazilian fishes collected by the late Professor C. F. Hartt have been identified by Professor Eigenmann. The large number of cats, sheep hearts and brains, and of representative vertebrates used annually at the practicum in Physiology and Zoology facilitate the study of both normal anatomy and variation. Besides the museum specimens there are in store many entire vertebrates, particularly marsupials at various ages. The hearts of numerous forms have been prepared by injecting alcohol into their cavities. For the study of cerebral topography, unusual facilities are offered in both material and literature.

The following courses are offered in 1904-1905:

[For the sake of correlation with courses 1 and 3 in Entomology and Invertebrate Zoology some of the courses in this department will occupy each about one-third of the college year; the exercises occur three times per week, but the courses will count each as a two hour course for a half-year. The Physiology of the first year in the Medical College includes the lectures of course 1. The Anatomy of the first year includes the lectures of course 3.]

1. **Physiology.** First half of first term. Credit, 2 hours. Two

lectures per week, Monday and Wednesday at 10. Two practicums or demonstrations, Wednesday and Friday, 2-4:30. Besides serving as an introduction to the other work in the department, this course is designed for those who intend to teach the subject in the public schools, and for others who may not have time for the more extended and technical instruction in the Medical College. The work is begun with the biceps, the several uses of which are demonstrated upon apparatus and the living muscle. Special attention is paid to points not infrequently neglected, the combinations and counteractions of muscles and the economics of levers in the body. At least one lecture is devoted to each of the following topics : Human locomotion, ciliary action, and the mechanics of circulation and respiration. At the practicums each student dissects the viscera and certain muscles of the cat, and the heart, brain and eye of the sheep. Under the microscope are examined the living amoeba, cilia in action, the circulation in the external gills of *necturus*, and the principal tissues. At the demonstrations are shown the action of the digestive ferments, the nerve-muscle preparation, reflex mechanisms, the action of the phrenic nerve, the relation of the vagus to respiration and cardiac inhibition, the behavior of the decerebrized frog, and the demonstration of the motor areas of the cerebral cortex. Members of the class are directed in the performance of the experiments by themselves.

The means of illustrating this course include a full-sized manikin, a complete set of Auzoux models, a "phantom brain," other models, and apparatus and charts. Professor WILDER and Mr. ——.

2. Vertebrate Zoology. Second half of the first term. Credit, 2 hours. Three lectures per week, Monday, Wednesday and Friday at 10. One practicum, the class in two sections, Wednesday and Friday, 2-4:30. At the practicums are dissected representative forms, including *necturus*, lamprey, ray, shark, etc.; sections of the lancelet are studied under the microscope. Professor WILDER, Dr. REED, and Mr. ——.

Course 2 must be preceded by course 1, or by course 1 in Entomology and Invertebrate Zoology.

3. Neurology. Second term. Credit, 2 hours. One lecture, Monday at 10. One practicum, the class in sections to be arranged. There are considered (a) the various modifications of the vertebrate brain; (b) the structure and peculiarities of the human brain; (c) the human cerebral fissures as criteria of zoologic or racial affinity, as indexes of physical or mental quality or power, and as boundaries of the cortical areas recognized by Flechsig and others. There is given a demonstration of the methods of removing and preparing the

human brain for the elucidation of morphologic points. For the illustration of this course there are numerous diagrams representing actual preparations of the brains of man and other vertebrates. The neurologic division of the museum comprises about 1,500 preparations distributed as follows, in round numbers: Human adults and children, 420; human embryo, fetal and at birth, 213; apes and monkeys, 282; other mammals, 400; other vertebrates, 185. See also course 7. Professor WILDER, Mr. —, and Mr. SHELDON.

Course 3 must be preceded by courses 1, 2 or 4, or by course 2 in the Medical College.

4. **Anatomical Methods and Dissection of the Cat.** First term. Laboratory work with occasional lectures at hours to be arranged. Three or more hours. This course is designed for those who intend to teach physiology or zoology, or who, in preparation for a medical course, desire to gain manipulative skill and familiarity with mammalian structure. Mr. —.

5. **Comparative Anatomy.** Second term. Credit, 3 hours. Lectures and laboratory work at hours to be arranged. The several systems of organs are considered in turn with reference to their structure, development and evolution. Dr. REED.

Course 5 must be preceded or accompanied by at least one of the courses 1, 2, 4 or 6.

6. **Systematic and Economic Zoology.** Three hours during the year at times to be arranged. One lecture, one practicum, and one field excursion each week. The lectures discuss the characters and relationships of the groups, and the habits, life-histories and economic value of certain forms. As laboratory work representative species are examined with special reference to the parts employed in classification. In the fall the fishes are studied, in the spring the birds, and the other classes in the winter. Dr. REED.

7. **Advanced Neurology.** Second term. Credit, two or more hours. Laboratory work and reading, with occasional lectures at hours to be arranged. This course runs parallel with course 3, and permits those who are interested and have time to consider forms, problems, and literature that cannot be included in that course. Professor WILDER.

8. **Research and Theses.** Daily throughout the year. Professor WILDER, Dr. REED, and Mr. —.

9. **Conference or Seminary.** Fortnightly throughout the year.

MICROSCOPY, HISTOLOGY AND EMBRYOLOGY.

As indicated by the following courses, this department offers elementary and advanced instruction in the theory and use of the microscope and its accessories, in photo-micrography, in vertebrate histology and vertebrate embryology; and opportunities for research in all of these subjects.

The material equipment consists of a good supply of modern microscopes, while camera lucidas, polariscopes, micro-spectroscopes, photo-micrographic cameras, microtomes, and other special apparatus are in sufficient numbers to give each student opportunity for personally learning to use them, and for applying them to any special study in which they are called for. Two projection microscopes are available for class demonstrations and for wax-plate reconstructions. The collection of histologic and embryologic specimens is extensive and constantly increasing.

The rooms for the use of this department are on the first and second floors of Stimson Hall. They consist of a large general laboratory, a research laboratory, a preparation room, and two laboratories for the instructing staff, where also special demonstrations of difficult subjects are given to small groups of students.

The aim of the department is to bring the student into direct contact with the truths of nature, and hence while there are lectures to give broad and general views, there is a large amount of laboratory work in which the facts are learned at first hand, and the methods and manipulations necessary for acquiring the facts are practised by each student. It is recognized that less ground can be covered in a given time in this way, but it is believed, and experience has confirmed the belief, that the intellectual independence and power to acquire knowledge direct from nature which is gained by this personal work is of far higher value than the facts and theories that might be learned in the same time from books and lectures alone, or from specimens prepared by some other individual.

The lake region with its rich and varied fauna is especially favorable for investigations in the histology and embryology of all the main groups of vertebrates; and the proximity of the abattoirs in the city makes it possible to obtain material for the study of the development of the sheep, cow and pig. The veterinary college clinic and the department of anatomy supply material for the embryology of the cat and dog, so that the opportunities for research upon the development of the domestic animals are excellent. Every encouragement is given for the fullest utilization of these opportunities.

I. **Microscopy, Histology and Embryology. Second half**

year. Credit 8 hours. Two demonstration-lectures, W. and F., 5; two recitations, and 12 hours of laboratory work in 3 hour periods, by appointment. Professor GAGE, Instructor THRO and Assistants READ, WINTER and _____.

Course 1 is not open to Freshmen in Arts.

Microscopy.—The aim is to give a working knowledge of the theory and use of the microscope and its accessories, methods of mounting microscopical specimens, etc. It serves as a basis for all the subsequent work of the department. The work begins with the 2d term and continues two weeks.

Histology.—This includes the study of the fine anatomy of the domestic animals and of man, and also the fundamental methods of histologic investigation and demonstration. This work continues 7 weeks.

Embryology.—This deals with the elements and methods of embryology in the amphibia, in the domestic animals, especially the chick and the pig, and in man. The instruction in Embryology continues 7 weeks.

4. Research in Histology and Embryology. Laboratory work eight or more actual hours per week with seminary throughout the year. This course is designed for those preparing theses for the baccalaureate or advanced degrees and for those wishing to undertake special investigations in histology and embryology. Professor GAGE and Mr. THRO.

Course 4 is open only to those who have taken course 1, or its equivalent in some other university. Drawing, (course 1, in Industrial Drawing and Art, or its equivalent) and a reading knowledge of French and German are indispensable for the most successful work in this course.

Subjects for theses should be decided upon as early as possible so that material in suitable stages of development and physiologic activity may be prepared.

5. Structure and Physiology of the Cell. First half-year. Two lectures per week at hours to be arranged. This course is designed for students of biology and medicine, and gives the fundamental facts and principles relating to cell structure and activity, especially in their bearing on general problems of biology and theories of evolution and heredity. Open to students who have had satisfactory courses in zoology, botany or physiology, or course 1. Assistant Professor KINGSBURY.

7. Seminary. One lecture or seminary each week at an hour to be arranged. At the seminary, there will be presented reports of special methods and the results of advanced work. Professor GAGE.

8. Structure, Development and Physiology of the Nervous System and the Organs of Special Sense. Credit 3 hours. Professor GAGE, Dr. KERR and Dr. KINGSBURY.

The course consists of three parts : (A) Gross Anatomy with special reference to medicine and surgery, Dr. KERR ; (B) Histology and Development, Prof. GAGE and Instructor THRO ; (C) Physiology, Dr. KINGSBURY.

The instruction in each part consists of laboratory work, demonstrations or lectures and recitations. The gross anatomy, histology and development are given during the latter part of the first term, and are immediately followed by the physiology in the first part of the second term. This course is only open to students who have done work in human comparative anatomy and have completed course I. It is a regular part of the curriculum of second year students in medicine.

NOTE.—For the work of this department the student will find a knowledge of Latin and Greek of the greatest advantage. A year's study of Latin, three to five recitations per week, and of Greek, Goodell's Greek in English, or Coy's Greek for beginners, would represent the minimum amount needed. For all courses, the ability to draw well freehand, and a good reading knowledge of French and German are desirable, and for research work almost indispensable.

GEOLOGY.

The Geological Department offers elementary instruction to undergraduates in Physical Geography, Physiography and Meteorology ; Dynamic and Structural Geology ; Mineralogy, Crystallography and Petrography ; Economic Geology ; Paleontology and Historical Geology. Provision is also made for advanced instruction in these branches for undergraduates and graduates. For graduates, primarily, courses will be given on the methods of conducting geological surveys and geological mapping ; on the correlation and classification of formations ; and on evolution and the history of organisms.

In providing for graduate work special consideration has been given to the exceptional natural advantages offered by Ithaca as a place for geological research. The richly fossiliferous, paleozoic rocks, in the midst of which the University is situated, have become by the great series of paleontological reports of the state the standard formations for the geology of the Continent ; the Devonian system has been for the last twenty-five years the subject of minute research and discussion by members of the United States geological survey, by state geologists and by private investigators who have brought it into international importance and have made its problems of the highest

scientific interest ; the territory immediately surrounding Ithaca is at the present time being thoroughly studied and mapped geologically, both by the government and state surveys ; the trustees have made provision for securing standard collections representing the typical sections upon which the classification of these maps is based ; the Devonian laboratory of the United States Geological Survey has been transferred to Ithaca by the authority of the Director of the Survey, and special provision has been made by the Trustees for its installation, care and use in McGraw Hall. The general collections of the Museum have been selected with special reference to making a working collection for students of Paleontology. The Newcomb collection of recent shells, and the large collections of Tertiary fossils collected by Professor Harris, (and his own private collections of the same kind), furnish the finest kind of material for minute and thorough study of the zoological characters of such organisms which are less perfectly expressed by Paleozoic fossils.

These accumulated facilities, together with the exceptional advantages for zoological and botanical studies offered by other departments of the University, make it possible for the geological department to offer specially attractive courses for men wishing to fit themselves for teaching geology or for practical geological survey work, and for the higher fields of research work connected with the evolutional history of organisms.

Students in this or other institutions wishing to take advantage of the facilities here offered should consult Professor Williams personally at his office in McGraw Hall, or by letter addressed to the Geological Department, Cornell University, Ithaca, N. Y.

Dynamic Geology and Physical Geography. Two elementary introductory courses are offered, one in physical geography, the other in geology, placing especial stress upon the dynamic side, but introducing the other aspects of geology where they have a distinct bearing upon the course. These are not primarily professional courses but are intended to meet the needs of those who, without meaning to specialize, desire a general knowledge of the earth sciences. At the same time they serve as the basis for more advanced work. These two courses together will serve as a preparation for those who expect to teach the earth sciences in secondary schools. After taking these two courses the student is able to undertake work for himself in the library, laboratory and field. In these more advanced courses small problems are investigated and reports made upon them, and thus a training is gained for more advanced field work upon larger problems.

The work of the first elementary courses consists partly of lectures and partly of field and laboratory work ; but in the advanced course no lectures are given, the work being largely individual. Therefore, from the very first the student is placed directly in contact with the problems of the field, and is given training in observation and geological reasoning. The laboratory is well equipped with models, maps, rock specimens and photographs illustrating geological and physiographical phenomena. The neighborhood of Ithaca abounds in both simple and complex illustrations of geological phenomena ; and in each class, in the spring and fall terms, excursions are made to points within easy reach of the University. These half-day excursions are supplemented by others to more distant points, occupying the entire day ; and still longer expeditions are made each year, for example, to Niagara and to the coal mines at Wilkes-Barre. Now and then vacation trips may be undertaken, particularly during the summer. In 1896 a party of advanced students made a journey to Greenland ; in 1899 to Maine ; and in 1900 to the Adirondacks. These more extended field expeditions are planned to give training for those who intend to pursue the subject of geology. In 1902 several advanced students were taken as assistants in work on Pleistocene geology, which is being done by the head of the department for the United States Geological Survey.

Mineralogy and Petrography. In this department both elementary and advanced courses are offered to students who have the necessary preliminary knowledge of chemistry and physics. The courses lead in two main directions : (a) toward an acquaintance with the properties, methods of investigation and uses of minerals and rocks ; and (b) toward a knowledge of the characteristics of crystallized matter, and of the important relationship existing between crystallography and the sciences of physics and chemistry.

The laboratory rooms and museum are situated at present in McGraw Hall. They are well equipped with study collections, including the Benjamin Silliman, Jr., collection of minerals, and with apparatus for experiment and investigation. There is also material for original research.

Paleontology and Stratigraphic Geology. The courses of this department are elective ; and are open to all. A special attempt is made to have all work, so far as is practicable, carried on after the manner of original research. This is rendered feasible by the fortunate location of the University, in the midst of the most important and classical State of the Union, so far as paleontology and stratigraphic geology are concerned.

A seemingly large proportionate amount of time is spent in field and laboratory, with a few recitations and lectures, thus giving the future teacher a knowledge at first hand of these important branches of geology as taught in secondary schools, and the future specialist precisely the knowledge and methods of work he will need in any university, state or national geological survey.

Great stress is laid on the study of shells, for by means of them stratigraphy and the world's geological history are mainly interpreted. The large University collections of invertebrates, fossil and recent, mostly shells, have been rearranged and catalogued during the past few years, and now form a most valuable and indispensable aid to elementary and advanced workers. Among those most serviceable to students of older formations will be found: the Jewett collection, especially rich in New York Silurian species; local and practically complete Devonian faunas from Central New York; the Hartt type collection of Carboniferous fossils from Brazil.

Of late special attention has been given to Tertiary paleontology and geology, several field expeditions being sent into the Southern States, where deposits of this age occur. The enormous amount of material so obtained when taken in connection with the Newcomb collection of recent shells (over 10,000 species) furnishes unparalleled opportunities for work in this branch of paleontology.

For the past four years this Department has been engaged in conducting a geological survey of the State of Louisiana. Winters have been spent in the field by several members of the Department. The studying and reporting upon these Tertiary and younger formations necessarily occupies much time. Summers, however, have been devoted to the interests of a school of field geology, established by this Department in the Helderberg mountains of Eastern New York. The type sections of New York's classic formations are visited and studied in detail by means of excursions by boat on the Hudson, Lake Champlain and Erie canal. The opportunity for original research in almost all the different horizons of the geologic scale can properly be styled exceptionally good.

Economic Geology. The courses of instruction are both required elective. The former are for students in the colleges of architecture, and forestry and civil engineering, and each course is adapted to the special needs of the class taking it.

The elective work is intended to give the student a general knowledge of the occurrence and properties of the useful minerals and rocks, or to enable him to specialize along certain lines if he so desires. The lectures are supplemented by laboratory and field work,

and occasionally longer excursions are taken, as to the coal regions of Pennsylvania, the mining regions of Michigan, etc.

The collection include : (1) About 4,000 specimens of useful minerals and rocks, including ores (iron, copper, gold, silver, lead, zinc, etc.), building stones, coals, clays, cements, petroleum, etc., to which additions are constantly being made. In many cases the product in different stages of completion is exhibited with the raw material in order to show more clearly the use of the mineral or rock. These specimens are used in both the lecture and laboratory work. (2) A collection of about 1,200 lantern slides and several hundred photographs.

The department also has a laboratory in which either chemical work or fire tests can be carried on, there being for this latter purpose two furnaces capable of generating 3,300 degrees Fahrenheit of heat. These are useful for testing clays and building stones; but the laboratory is especially well equipped with apparatus for clay investigation.

The following courses are offered in 1905-1906 :

Consultation Hours.

Professor Henry S. Williams, office and library of the Department 1st floor McGraw Hall, south entry. 11-12 A. M. Mondays.

Professor Tarr, office second floor, south end of McGraw Hall. M., T., W., Th., 11-12.

Professor Harris, Geol. Library, Tue., 12.

Professor Gill, 9-10 daily, except Sat.

Professor Ries, M., T., W., 9-10.

Dynamic Geology and Physical Geography.

I. Elementary Physical Geography or Physiography. This course is divided into two parts, 1a, lectures, and 1b, laboratory and field work. 1a may be taken without 1b.

1a. Lectures, two hours, M., W., 9, *Geological Lecture Room.*
Professor TARR.

A study of the forms of the land, their origin, development, and influence on man. Followed by a briefer consideration of the atmosphere and the oceans. Illustrated by maps, models and lantern slides. The class is required to take an all day excursion to Enfield Glen in the fall, and to Lake Ontario in the spring. For this purpose one Saturday must be reserved each term. Voluntary excursions to Freeville, Watkins Glen and Niagara are also open to members of this class.

1b. Field and Laboratory Work. One hour. Either M., T., or Th., 2-4.30, *Physical Geography Laboratory.* Mr. HUBBARD.

Field excursions to points near the University in the fall and spring, and indoor laboratory work with maps and models of type land forms in the winter.

Meteorology. Course 40, three hours for second term, is correlated with course 1.

2. Dynamic, Structural and Physiographic Geology. Three hours throughout the year. Lectures, field work and laboratory work. Includes a study of weathering, rivers, glaciers, ocean, nature and origin of rocks, mountain formation, volcanoes, earthquakes, etc.; also the application of the principles of dynamic geology to an interpretation of the past history of the earth. Each phase of the subject is fully illustrated by lantern views.

The indoor laboratory work is mainly confined to the winter season. During the fall and spring the laboratory hour is devoted to a field study of geological phenomena near the University. One all day excursion is made by lake to Taughannock, and another to Union Springs. These excursions are made on Saturday, and each is counted as the equivalent of two laboratory periods. A voluntary excursion to the coal mines at Wilkesbarre is also offered.

Lectures T., Th., 9, *Geological Lecture Room*. Laboratory and field work either M., T., Th., or F., 2-4.30. In addition it is necessary to have one free Saturday in fall and spring for an all day excursion. Professor TARR and Mr. MARTIN.

3. Dynamic Geology. From Christmas recess to Easter recess. Credit two hours for second term. One lecture, M., 10; one recitation, either T., 10, T., 11, W., 11, Th., 9, or Th., 10; and one laboratory period, either W., 9-11, F., 9-11, F., 11-1, S., 8-10, or S., 10-12, Professor TARR, Mr. HUBBARD and Mr. BUTLER.

Required course for Civil Engineers. Not open to elective students.

4a. The Geography of North America. Two hours. A consideration of the physiographic features of North America and their influence upon the history and industrial development of the several nations. The principal sub-topics are; (1) the physiography of the continent and its development; (2) the climate, from standpoint of cause and effect; (3) the natural resources; (4) the influence of these various physiographic features upon the aborigines, early settlements, occupations of the people, location of cities, etc. The lectures are illustrated by lantern slides, maps and models. Lectures T., Th., 10, *Geological Lecture Room*. Professor TARR.

Courses 4a and 4b are given in alternate years.

[**4b. The Geography of Europe.** Two hours. A consideration of the physiographic features of Europe and their influence upon the

history and industrial development of the several nations. The principal sub-topics are: (1) the physiography of the continent and its development; (2) the climate from the standpoint of cause and effect; (3) the natural resources; (4) the influence of these various physiographic features upon race characteristics, early movements of people, development of navigation, modern national development, location of leading cities, both in the past and the present, etc. Illustrated by lantern slides, maps and models. Lectures T., Th., 10, *Geological Lecture Room*. Professor TARR.

Courses 4a and 4b are given in alternate years. Course 4b is omitted in 1904-5.]

5. **Advanced Physiography.** Four hours. A study of special topics of physiography in the field and laboratory. In addition to discussions, conferences, review of literature, and directed excursions each student will be required to do independent field and laboratory work. Admission to this course by undergraduates requires special permission, and in all cases courses 1a, 1b and 2, or their equivalent, are prerequisite, W., 2-5, *Physical Geography Laboratory*. Professor TARR and Mr. HUBBARD.

6. **Experimental Geology.** Original investigation by experiment in dynamic and physiographic geology. Each student will take a line of work for experiment, for example, mountain folding, sedimentation, glacial action, river erosion, river deposit, etc. Credit depending upon the nature of the problem selected, but in no case less than two hours for the full year or four hours for a single term. Undergraduates are admitted only by special permission, and in all cases courses 1a, 1b and 2, or their equivalent, are prerequisite. This work may be made the basis for both graduate and undergraduate theses. Professor TARR.

7. **Glacial Geology.** Three hours. In the fall and spring the class investigates in detail the glacial geology of a region selected for the purpose. This gives practice in actual field investigation, and in field methods. During the winter the notes and maps are worked up, and conferences and discussions are arranged upon the results. In addition, each student is expected to prepare and deliver a lecture upon some subject in glacial geology. All day Saturday during fall and spring; Tuesday, 4:30-6, during the winter. Primarily for graduates. Professor TARR.

8. **Geological Investigation.** Field and laboratory work with readings, conferences, excursions, and the preparation of theses. Original investigation based upon field work is undertaken by each student. Primarily for graduates. Professor TARR.

9. **Geological Seminary.** Two hours. Preparation and reading of theses upon special subjects, particularly upon investigations in the field. Abstracts and discussions of the current geological literature. Open to graduates and those undergraduates who are sufficiently advanced. Monday, 4:30-6. Professor TARR.

Mineralogy and Petrography.

10. **Mineralogy.** First term until Christmas recess. Credit, two hours. A short course required of Civil Engineers, consisting of lectures, recitations, laboratory practice. Open only to students who have passed a year's work in Chemistry. M. and W., 10, and Th., 2, F., 10, or F., 2. Assistant Professor GILL and Mr. McCOURT.

[11. **Mineralogy.** Three hours, two lectures and one laboratory hour, throughout the year. Lectures, T., Th., 8; laboratory hours to be arranged. This course is for beginners, and is designed both as a general course in the subject, and as an introduction to more advanced work. Assistant Professor GILL. Course 11 is given in alternate years with courses 14 and 15. It is omitted in 1904-5.]

12. **Crystal Measurement and Drawing.** Second half-year. Two hours. Assistant Professor GILL.

13. **Determination of Minerals by the Blowpipe Method.** First half-year. One laboratory hour. Must be preceded by some course in Mineralogy. Assistant Professor GILL.

14. **Physical Crystallography.** First half-year. Three hours, two lectures and one laboratory hour. Must be preceded by course 11 or its equivalent. Assistant Professor GILL.

15. **Petrography.** Second half-year. Three hours. This course, together with the preceding, is intended to give an elementary knowledge of the determination of minerals and rocks under the microscope. Assistant Professor GILL.

16. **Seminary in Mineralogy and Crystallography.** One hour throughout the year. Devoted to the study of current literature and some of the more important classic writings. Assistant Professor GILL.

17. **Advanced or Special Work in Mineralogy and Petrography.** Adapted to the needs of the individual student. The work may be directed in the line of Crystallographic Measurements, Crystal Structure, Mineral Synthesis, Microchemical Methods or Petrographic Research. Assistant Professor GILL.

Paleontology and Stratigraphic Geology.

*Office and Laboratory, fourth floor and basement of McGraw Hall.
Consultation hour 12 Tuesday. All courses elective.*

21. Historical Geology. Three lectures a week (fall and spring only.) Credit, two hours. A course designed to give the beginner or general student a clear and vivid idea of the principal changes through which the earth has passed from its nebulous stage to the present day. Well illustrated by lantern views and cabinet specimens. Excursions to Union Springs in the fall; to Chemung Narrows in the spring. Two short free excursions on Cayuga Lake each term. Longer voluntary excursions to Niagara gorge and the vicinity of Lockport, Buffalo and Rochester. Hours to be arranged to suit the convenience of those concerned; generally at *Geol. Lect. Room. 12*, M., W., F. Assistant Professor HARRIS, and Mr. WHITNEY.

22. Stratigraphic Geology. Six periods a week; three lectures; three laboratory hours; fall and spring only. Credit, four hours. Includes course 21, and takes the student into the field at frequent intervals, at least twice a week, generally Tuesday and Saturday afternoons. Following the precedent of the U. S. Geological Survey, field work is begun by the construction of topographic maps. Various map projections are discussed at length in the laboratory. Lines of spirit levels are run for the purpose of furnishing bench marks for further topographic and section work. Fossils are collected systematically from the different horizons in each section. They are identified, and their horizons correlated, in the laboratory. Designed for those who would thoroughly understand the methods of geological work, either for the purpose of teaching well, or of doing independent work after leaving this institution. Hours to be arranged. Assistant Professor HARRIS, Mr. WHITNEY and Mr. ——.

23. Elementary Conchology. Three periods a week; fall and spring only. Credit, two hours. Pelecypoda and Gastropoda, fall; Brachiopoda and Trilobita, spring. Hours to be arranged. Assistant Professor HARRIS.

24. Field and Laboratory Work. All special and advanced work is included under this heading. Hours various. Assistant Professor HARRIS.

The following new courses in Paleontology will be offered during the coming year by Professor Williams, who will be on the ground for consultation at the opening of the fall term, by men wishing to carry on research work in the department.

Courses 27, 28, and 29 are arranged as a consecutive series of studies on the history of organisms.

In the treatment of the subject, the method of Darwin is adopted, in which the living organism is considered as an organic unit, whose behavior, structure and form change in relation to ancestry and environment; in contrast with the methods of histologists and physiologists whose attention is more directly given to the molecular and chemical phenomena of parts of organisms.

Course 27 deals comprehensively with the fundamental problems of evolutionary science and theory. While primarily designed as an introduction to investigations of the biological problems of geology, it is adapted to the needs of students of all branches of organic science, including the study of man and society.

Courses 28 and 29 are advanced courses in special fields of Paleontology, designed for those wishing to fit for professional work as geologists or teachers.

27. **Organic Evolution.** A discussion of the evolutional phenomena of organisms; the factors of evolution as formulated in the various theories of evolution; and the facts of evolution as expressed in historical paleontology. An introduction to the historical study of organisms. Two hours lectures, supplemented by reading Darwin's "Origin of Species", on which written examinations will be held about once a month throughout the year, to count as a three-hours course. M., W., 10, *Geological Lecture Room*. Prof. H. S. WILLIAMS.

28. **Invertebrate Paleontology.** Systematic study of the structure, mode of occurrence, geological range and geographical distribution of fossil organisms; and of their uses in determining time horizons and in correlating geological formations. Chiefly laboratory work; hours to be arranged. Prof. H. S. WILLIAMS.

29. **Geological Evolution of Organisms.** Investigation of the evidences of evolution exhibited by selected groups of fossil organisms, with preparation of theses. Assignment of topics, methods and field of research to be arranged. Prof. H. S. WILLIAMS.

Economic Geology.

Required Courses.

30. **Economic Geology for Civil Engineers.** From Easter recess until end of second half-year. Credit, two hours second term. Lectures M., W., 10, and one laboratory period, M., T., Th., or F., 2-4, *Geological Lecture Room*. Assistant Professor RIES and Mr. BUTLER.

31. **Clay-Products and Building Stones.** Required for architects. Open to elective students only by special permission. Second-

half-year. Two hours. Lecture, M., 12. Laboratory, W., 2-4. *Geological Lecture Room.* Assistant Professor RIES and Mr. BUTLER.

Elective Courses.

32. General Economic Geology. a. Two hours lectures throughout the year. M., W., II. b. Laboratory, M., or T., 2-4 throughout the year. Students may take the lectures without the laboratory, but those who have the time should take both. A comprehensive course upon the origin, nature, and distribution of the metallic and non-metallic products, with especial reference to those of the United States. Students taking this course should have had sufficient preparation in geology and mineralogy. *Geological Lecture Room.* Assistant Professor RIES.

Intended for students in geology, for those studying mining engineering and for students in inorganic chemistry.

33. Origin and Nature of Soils. First half-year. Two hours. Lectures. Time to be arranged.

34. Clay Investigation. Primarily for graduates. Laboratory work, field work and reading. In the laboratory are taught the different methods of testing clays for the purpose of determining their uses. Assistant Professor RIES.

35. Advanced Economic Geology. Primarily for graduates. This course, including laboratory work, field work and reading, will vary with the needs of the individual student. Assistant Professor RIES.

36. Seminary in Economic Geology. Three hours credit. Time to be arranged. Abstracts and discussions of the current literature on economic geology, and preparation of papers on special subjects. Primarily for graduates, but open to undergraduates who have had sufficient preparation. Assistant Professor RIES.

Meteorology.

40. Meteorology. Three hours, second term. Two lectures and one period devoted to laboratory work and weather observations. The course is concerned with the temperature, rainfall, and other meteorologic elements, their normal conditions, variations and distribution; with the general atmospheric circulation; the cyclonic and special storms. Students will be made acquainted with the weather map, forecasting, and the instruments used in measuring and recording meteorologic elements. Lectures, T., Th., II; laboratory, F., 2-4:30. Mr. HUBBARD.

MILITARY SCIENCE AND TACTICS.

Pursuant to the act of Congress creating the land grant on which Cornell University is founded, and the act of the legislature of the State of New York assigning the land grant, instruction is provided in Military Science and Tactics.

Military Drill is required of all male Freshmen except aliens, laboring students, special students and those physically unfit therefor. A student deficient in a term of Military Drill is not permitted to substitute anything else for that work, or to be excused from any subsequent term until the deficiency is removed. In the case of students not taking Drill, an equivalent in hours will be added to the hours required for graduation.

Students who drill are required to provide themselves with the University uniform, unless excused on account of inability to procure it, and they are held accountable for loss or injury to the arms and other public property issued to them.

Any member of the Cornell University corps who has satisfactorily performed all the duties required for the first year, and who is qualified therefor, may be selected for the place of a commissioned officer, if needed. For the performance of his duties as a commissioned officer in the sophomore, junior or senior year, he is entitled, if duly registered therefor, to credit of two recitation hours a week, and, at graduation, he may receive a certificate of military proficiency with his diploma, provided he has also completed the course in military science prescribed for such students.

Upon the graduation of each class, the names of such students as have shown special aptitude for military service will be reported to the Adjutant General of the Army and to the Adjutant General of the State of New York, and the names of the three most distinguished students in military science and tactics will be inserted in the *Official Army Register*, from Headquarters of the Army.

Students required to drill must complete the work within their Freshman year, unless duly authorized to postpone part of the work because of illness or other necessity.

The Cadet Corps is organized as follows: An infantry battalion with band, a field battery (dismounted), a signal detachment, and a hospital detachment.

The following courses are offered in 1904-1905:

1. **Infantry Drill.** School of the soldier. School of the company. School of the battalion and ceremonies. First term until Christmas recess and second term after Easter recess. Credit, 2 hours each term. Major VANNES.

2. **Artillery Drill, for Selected Detachments.** School of the Battery, dismounted. Sabre exercise. First term until Christmas

recess and second term after Easter recess. Credit, 2 hours each term.
Major VANNESS.

3. **Military signaling** for selected detachment. First term until Christmas recess and second term after Easter recess. Credit, 2 hours each term. Major VANNESS.

Students in courses 2 and 3 are selected by the Commandant from those reasonably proficient in course 1.

4. **Musketry and Target Practice.** For volunteers only. Theoretical instruction. Position and aiming drills and gallery practice. Christmas recess until Easter recess. M., F., 12. Armory. Range practice, 200 and 300 yards. Second term after Easter recess. Hours to be arranged.

The marksman's badge, presented by Gen. A. C. Barnes of the Board of Trustees, will be conferred on each student qualifying as marksman; a bar to be added for each subsequent qualification.

5. **Litter Drill and Instruction in First Aid to the Wounded.** A hospital detachment, composed mainly of students intending to enter the Medical profession, is attached to the infantry battalion.

Elective Courses.

6. **Military Science.** (*For students in 2d, 3d, or 4th year*). Lectures and text-book. Christmas recess until Easter recess. Credit, 1 hour each term. T., Th., 12. Major VANNESS.

7. **Elective Drill.** Students of the sophomore, junior and senior classes may elect drill, and, if duly registered therefor, they may receive a credit of two recitation hours per week, whatever grade they may occupy in the cadet organizations.

The military band is supported by the University. An instructor and band instruments are provided. Members of the band receive the same credit, for required or elective military work, as other cadets.

PHYSICAL CULTURE.

For the physical training and development of male students there has been provided a Gymnasium, thoroughly equipped with baths, dressing-rooms, and all the apparatus usually found in a well-furnished gymnasium. This is under the charge of the Professor of Physical Culture and Director of the Gymnasium, with the assistance of an experienced physician who examines every male student at his entrance and at stated intervals thereafter, learns the condition of his health, takes his physical measurements, and prescribes such exercise as may be required for his complete and symmetrical bodily development. The gymnasium is also open to all the members of the University for voluntary exercise; but the Professor of Physical Culture or the Instructor in Gymnastics is in constant attendance, and no stu-

dent is suffered to indulge in hazardous or excessive athletic efforts, or to attempt any feat which in his individual case is likely to be attended with risk.

Special provision has also been made for the physical training of women in the Sage College Gymnasium. The department has organized a system of exercise calculated to maintain and develop the physical strength of young women, and at the same time prevent any of the evils which might arise from exercises that are too violent or too long continued. The exercises thus provided for are obligatory upon all members of the freshmen or sophomore classes living in the college, subject to exceptions in particular cases by the Instructor in charge.

The building erected for the purpose of the **GYMNASIUM AND ARMORY** is situated at the extreme southern end of the campus. The main portion is of brick, one hundred and fifty feet long, sixty feet wide and fifty feet high. The Annex joining the main hall on the south, is a three-storied building, having an area of seventy-four by eighty feet. The main building, with the exception of a small portion that is set apart for an office and a military store-room, is used for gymnastics and military drill. This contains the arms and equipment of the cadet corps, and a carefully selected supply of the most improved gymnastic apparatus and appliances for both individual and class work. The hall is heated by steam and lighted by electricity, and gives a clear space of floor room in the gymnasium of one hundred and thirty-five by sixty feet. The Annex contains the offices of the Department of Physical Culture, examination room, bath rooms, swimming bath, lavatory, closets, general repair room, baseball batting cage, crew practice room, and dressing-rooms which contain locker accommodations for about one thousand students.

Athletics.—The Cornell Athletic Association, composed of representatives from the trustees, faculty, and student athletic organizations, was incorporated in June, 1889. A standing committee on student organization, including the faculty members of the association, has also been appointed from the faculty. It is hoped that the coöperation of these various interests, and the existence of a permanent organization, may tend to produce a greater steadiness in the management of athletics, and permit of some continuity in the transmission of athletic methods and traditions.

The athletic ground called Percy Field, after the son of one of the donors, was secured and equipped for out-of-door sports by the joint gift of Mr. J. J. Hagerman and Mr. W. H. Sage. The field has an area of nearly ten acres, including a quarter-mile cinder track, the Witherbee Memorial club-house, and a grand stand seating about

twelve hundred persons, and is arranged for football, baseball, tennis, and general athletics.

Fifty-five acres of land adjoining the University campus have been set aside by the trustees of the University for a new University Playground and Athletic Field, the construction of which has already been taken by the Alumni.

The following courses are offered in 1904-1905:

4. **Special Medical Advice to Indigent Students.** Gymnasium office. Professor YOUNG and Dr. GRAY.

5. **Gymnastic Exercises.** Asthenic class, consisting of men who in the judgment of the director—which judgment is founded on a physical examination,—are imperatively in need of special physical development and others who may elect. First term until Christmas recess and Easter recess until end of year. Credit, 1 hour each term. The work consists of class and squad work, indoors and out, special developing exercises, and exercises prescribed by the Director for individual deformity or immaturity. Daily ex. S., 5-6. Professor YOUNG and Mr. LANNIGAN.

6. **Gymnasium Exercises.** Christmas recess until Easter recess. Elective for men of three upper classes. Freshmen 4-6. M., T., Th., F. Credit, 1 hour each term. Optional class on W., S., 5. Special exercises for individuals during the forenoon at hours to be arranged. Professor YOUNG and Mr. LANNIGAN.

7. **Physical Examinations.** Required of all men entering the University this year, and at the beginning of each athletic season's training for all men who are to train for athletic competition. Make special appointments at Gymnasium office. Professor YOUNG and Dr. GRAY.

8. **Re-examination** of old students by appointment throughout the year. Professor YOUNG.

9. **Theoretical and Practical Gymnastics** open only to juniors and seniors who expect to teach. Counting two hours. Hours to be arranged. Professor YOUNG and Mr. LANNIGAN.

10. **Women's Gymnastic Exercise.** Freshmen and Sophomores. Instruction is given in class exercises, with and without apparatus, throughout the year. Gymnasium for women. Daily ex. S. Credit, 2 hours each term. Miss CANFIELD.

11. **Advanced Practical Gymnastics.** Readings and practical exercises. Open only to women who have completed course 10 or a substantial equivalent. Two hours. Hours to be arranged. Miss CANFIELD.

12. **Physical Examinations**, women of all classes, by special appointment. Office of the Gymnasium for Women. Miss CANFIELD and Dr. ELMA GRIGGS.

THE COLLEGE OF LAW.

FACULTY.

JACOB GOULD SCHURMAN, A.M., D.Sc., LL.D., President.
ERNEST W. HUFFCUT, B.S., LL.B., Director of the College, Dean
of the Faculty, and Professor of Law.

FRANCIS M. FINCH, A.B., LL.D., Professor Emeritus, and Lec-
turer on the History and Evolution of Law.

WILLIAM A. FINCH, A.B., Professor of Law.

EDWIN H. WOODRUFF, LL.B., Professor of Law.

FRANK IRVINE, B.S., LL.B., Professor of Practice and Procedure.

WILLIAM L. DREW, B.S., LL.B., Professor of Law.

FREDERICK D. COLSON, B.L., LL.B., Instructor in Procedure.

JUDGE ALFRED C. COXE, A.M. (United States Circuit Judge),
Lecturer on the Law of Shipping and Admiralty.

ALBERT H. WALKER, LL.B. (of the New York Bar), Lecturer on
the Patent Laws of the United States.

ROYAL A. GUNNISON, LL.B. (of the Binghamton Bar), Lecturer
on the United States Bankruptcy Act.

ALEXANDER H. R. FRASER, LL.B., Librarian.

[Inquiries as to acceptance of certificates should be addressed to the
Registrar.

Address all other communications to The College of Law, Cornell
University, Ithaca, N. Y.]

ADMISSION TO THE COLLEGE.

Admission to the First-Year Class. Applicants for admission
to the first-year class as candidates for a degree must be at least eighteen
years of age, and must have had a previous education at least
equivalent to a high school course. The educational requirement may
be satisfied by the presentation of certificates, or by examinations, as
follows :

A. **ADMISSION ON DIPLOMA OR CERTIFICATE.** The following applicants
will be admitted without examination, upon the presentation
of satisfactory certificates or diplomas :

(1) Graduates of universities and colleges, or students who have met the entrance requirements and satisfactorily completed one year of study in any university or college of approved standing.

(2) Holders of an academic diploma, or any sixty-count academic certificate, issued by the Regents of the State of New York.

(3) Graduates of high schools and academies of approved standing in a course of not less than four years, or, if less than four years, including the examination subjects required for admission to the College, or their substantial equivalents, and in either case, recommended by the principal of the high school or academy issuing the certificate or diploma for admission without examination.

Applications for admission on a diploma or certificate issued by a public or private high school or academy must be sent in advance to the Registrar of the University by the principal of the school issuing the diploma and not by the candidate himself, and must be accompanied by full and specific information with regard to the course of study, the time given to each subject and the amount of work covered in each subject. When a catalogue or circular is issued by the school this should also be filed with the application. Blank forms of certificate may be obtained of the Registrar.

Applicants for admission on diploma or certificate who for any reason submit themselves to examinations in any subject required for admission on examination and fail or are conditioned, will not be regarded as in full standing until such deficiency is made good; and no one taking the examination in English and found markedly deficient will be admitted.

The certificates of students who desire to take the four-year course in law must cover the examination subjects required for admission to the College of Arts and Sciences, and the requirements in English prescribed by that College must also be met.

B. ADMISSION ON EXAMINATION. All other applicants, if candidates for a degree, are required to pass a satisfactory examination in the subjects required for admission to the College of Arts and Sciences. (See page 80.)

Admission to Advanced Standing. Applicants for admission to advanced standing as members of the junior (second-year) class must be at least nineteen years of age, must meet the educational requirement specified for admission to the first-year class, and must pass a satisfactory examination in all the law work of the first year. Examinations upon all the subjects of the first year are given in the University in September, beginning Tuesday of registration week, as follows: Tuesday, 9 a. m. Contract; 3 p. m. Torts; Wednesday, 9 a.

m. Criminal Law; 3 p. m. Property; Thursday, 9 a. m. Civil Procedure.

Admission as Special Students. Applicants who are twenty years of age may, in the discretion of the Faculty, be admitted to the College without examination, as special students, not candidates for a degree, and may elect such work as they desire, subject to the permission of the professors whose subjects are selected. This privilege will be granted only upon written application specifying the age of the applicant, the amount of preparatory study, or of previous law study, and accompanied if practicable by certificates from the preparatory school, law school, or attorney, under whose direction such studies have been pursued. New York students will not be admitted as special students unless they present a Regents' law student certificate. Applicants are advised to correspond with the Dean of the College before presenting themselves in person. In order to remain in the College special students must pass satisfactory examinations in at least ten hours of work (equal to two class room hours a day). Special students may be admitted as candidates for a degree if they satisfy the entrance requirements before the beginning of their second year in College.

Admission of Students from the College of Arts and Sciences. Juniors and seniors in good standing in the College of Arts and Sciences of the University, are allowed, with permission of the Faculty of Arts and Sciences and with the consent of the Faculty of Law in each case, to elect studies in the College of Law which shall count toward graduation both in the Arts course and in the College; but the sum total of hours so elected cannot exceed the number required for one year's work in the College of Law, or exceed nine hours per week in any term. Under this provision a student may complete a general course of university study and the law course in six years.

COURSE OF INSTRUCTION.

The course of instruction extends through three years of about nine months each. The object of the College is to afford a thorough training in the fundamental principles of Anglo-American law, both the substantive law and the law of procedure. Instruction is carried on by the study of selected cases, text-books, and synopses, by lectures and exposition, and by colloquy and discussion. In addition to the courses given by the resident Faculty, provision is made each year for courses of lectures by eminent specialists in the profession.

TABULAR OUTLINE.

Three-Year Law Course.

The course of instruction extends through three years (for four-year course, see p. 216), of nine months each.

<i>1st Year.</i>	No. Course.	1st Term.	2d Term.
Contract	1a	4	2
Agency	1b	-	2
Torts (including Master and Servant)	2	3	3
Criminal Law and Procedure	3	4	-
Real and Personal Property	4	3	3
Civil Procedure	5	-	4
<i>Junior Year.</i>	No. Course.	1st Term.	2d Term.
Personal Property and Sales	20	4	-
Suretyship	21	-	3
Probate Law	22	2	-
Equity Jurisdiction and Trusts	23	3	3
Insurance	24	2	-
Domestic Relations and Persons	25	-	2
Evidence	26	-	3
Civil Procedure	28	3	-
Procedural Papers	28a	-	2
College Court	29	1	1
<i>Senior Year.</i>	No. Course.	1st Term.	2d Term.
Property, Suretyship and Mortgage	30	-	4
Partnerships ; Corporations	31-32	3	3
Quasi-Contracts	33	2	-
Carriers	34	-	2
Bills, Notes and Checks	35	2	-
Constitutional Law	36	-	2
Civil Procedure	37	4	-
History and Evolution of the Law	39	2	-
Practice Court	41	1	1

First Year.

Boardman A.

i. a. **Contract.** Four hours until the Easter recess. Huffcut's Anson on Contract ; Huffcut and Woodruff's American Cases on Contract (2d ed.) T., W., Th., F., 9. Professor WOODRUFF.

i. b. **Agency.** Four hours from the Easter recess. Huffcut's Agency (2d ed.), Huffcut's Cases on Agency. T., W., Th., F., 9. Professor WOODRUFF.

[Contract and Agency constitute a continuous course and registration must be for the entire year.]

2. **Torts (including Master and Servant).** Three hours. Ames's and Smith's Cases on Torts, 2 vols.; Huffcut's Agency (2d. ed.), Book II. M., W., F., 10. Professor HUFFCUT.

3. **Criminal Law and Procedure.** First term. Four hours. Beale's Cases on Criminal Law; Beale's Criminal Pleading and Practice; New York Penal Code and Code of Criminal Procedure. M., T., W., Th., II. Professor DREW.

4. **Real Property.** Three hours. Finch's Cases on the Law of Property in Land; Tiffany on Real Property. T., Th., F., 12. Professor W. A. FINCH.

5. **Civil Procedure.** Second term. Four hours. Introductory lectures on the relation of procedure to substantive law, and the development of the reformed procedure; New York Code of Civil Procedure, first five chapters, and selected cases on topics included therein; Common Law Pleading. M., T., W., Th., II. Professor IRVINE.

Junior Year.

Boardman B.

20. **Personal Property and Sales.** First term. Four hours. Burdick on Sales; Burdick's Cases on Sales: Brantly's Personal Property, and selected cases. T., W., Th., F., 10. Professor W. A. FINCH.

21. **Suretyship.** Second term. Three hours. Ames's Cases on Suretyship. T., Th., F., 10. Professor DREW.

22. **Probate Law.** First term. Two hours. Wills and Administration and Surrogate's Practice. Statutes, codes and selected cases. T., Th., 9. Mr. COLSON.

23. **Equity Jurisdiction and Trusts.** Three hours. Ames' Cases on Equity Jurisdiction; selected cases on Trusts. T., Th., F., II. Professor HUFFCUT.

24. **Insurance.** First term. Two hours. Woodruff's Cases on Insurance. M., 10, W., II. Professor WOODRUFF.

25. **Domestic Relations and the Law of Persons.** Second term. Two hours. Woodruff's Cases on Domestic Relations and the Law of Persons. M., 10, W., II. Professor WOODRUFF.

26. **Evidence.** Second term. Three hours. Thayer's Cases on Evidence. M., W., F., 9. Professor IRVINE.

28. **Civil Procedure.** First term. Three hours. (a) Equity pleading and practice, with special reference to the system in use in the Federal courts. (b) New York Code of Civil Procedure, chapters 6 to 8 inclusive; and selected cases. The preparation of plead-

ing and motion papers by every member of the class, on hypothetical statements of facts, is part of the required work; the form, sufficiency, etc., of the pleadings submitted being discussed in the class room. M., W., F., 9. Professor IRVINE and Mr. COLSON.

28a. **Procedural Papers.** Second term. Two hours. Course 28 continued with preparation of papers. T., Th., 9. Professor IRVINE and Mr. COLSON.

29. **College Court.** One hour. Arguments in Club Courts upon agreed statements of facts. A member of the Faculty presides at each argument. M., II.

Senior Year.

Boardman C.

30. **Property.** Second term. Four hours. Tiffany on Real Property; Finch's Cases on Property in Land, and other selected cases. M., W., Th., F., 10. Professor W. A. FINCH.

31-32. **Partnership. Corporations.** Three hours. Burdick on Partnership; Burdick's Cases on Partnership. Smith's Cases on Private Corporations. M., W., F., 9. Professor DREW.

33. **Quasi-Contracts.** First term. Two hours. Synopsis and selected cases. T., Th., II. Professor WOODRUFF.

34. **Carriers.** Second term. Two hours. McClain's Cases on Carriers. T., Th., II. Professor WOODRUFF.

35. **Bills, Notes and Checks.** First term. Two hours. Huffcut's Statutes, Cases and Authorities on Negotiable Instruments. M., W., II. Professor HUFFCUT.

36. **Constitutional Law.** Second term. Two hours. McClain's Cases on Constitutional Law. M., W., II. Professor HUFFCUT.

37. **Civil Procedure.** First term. Four hours. New York Code of Civil Procedure, chapters 9 to 17 inclusive and chapter 19, with selected cases on topics included therein. Preparation of papers, on hypothetical statements of facts, in the actions and special proceedings, the procedure in which is regulated by the chapters above mentioned, is part of the required work. M., W., Th., F., 10. Professor IRVINE and Mr. COLSON.

38. **College Court.** One hour. This is supplementary to the course in Procedure, and is presided over by the Professor of Procedure as judge. Cases are prosecuted and defended by the members of the class as attorneys on hypothetical statements of facts. Process is served, pleadings are drawn, motion papers are prepared and motions argued, and cases are tried, all as nearly as may be in conformity with the procedure in the Supreme Court of the State of New York. F., II.

40. **History and Evolution of Law.** First term until Thanksgiving. Three hours. M., W., F., II. Professor F. M. FINCH.

Four-Year Law Course.

Students who meet the specific requirements for admission to the College of Arts and Sciences (and no others) may take a four-year course as follows :

The course of instruction extends through four years (for three-year course see page 213) of nine months each.

	No. Course.	1st Term.	2d Term.
Contracts	1a	4	2
Agency	1b	—	2
Torts (including Master and Servant)	2	3	3
Property	4	3	3
Electives (College of Arts and Sciences)	—	5-6	5-6

	No. Course.	1st Term.	2d Term.
Criminal Law and Procedure	3	4	—
Civil Procedure	5	—	4
Sales	20	4	—
Insurance, Domestic Relations	24-25	2	2
Suretyship	21	—	3
Electives (College of Arts and Sciences)	—	5-8	5-8

	No. Course.	1st Term.	2d Term.
Probate Law	22	2	—
Equity, Jurisdiction and Trust	23	3	3
Civil Procedure	28-28a	3	2
Evidence	26	—	3
College Court	29	1	1
Electives (College of Arts and Sciences)	—	5-8	5-8

	No. Course.	1st Term.	2d Term.
Property, Suretyship and Mortgage	30-30a	—	4
Partnerships; Corporations	31-32	3	3
Quasi-Contracts	33	2	—
Carriers	34	—	2
Bills, Notes and Checks	35	2	—
Constitutional Law	36	—	2
Civil Procedure	37	4	—
History and Evolution of the Law	39	2	—
Practice Court	41	1	1

Special Courses of Lectures.

The Patent Laws of the United States. *Mr. Walker.*

The Law of Shipping and Admiralty. *Judge Coxe.*

[The above two courses are given in alternate years.]

The United States Bankruptcy Act. *Mr. Gunnison.*

Special Lectures.

During the past year the following special lectures have been given before the College of Law :

The Judicial History of the Province and State of New York. *William F. Cogswell, Esq.*, of Rochester.

The Examination and Cross-Examination of Witnesses.
Hon. Frank H. Hiscock, of Syracuse, Justice of the Supreme Court.

The Birth of the Law. *Hon. Alton B. Parker*, Chief Judge of the New York Court of Appeals.

The Code of Hammurabi: The Oldest Law Book in the World, *Nathaniel Schmidt*, Professor of Semitic Literature in Cornell University.

The Place of Advocacy in Modern Practice. *Charles E. Hughes, Esq.*, of New York City.

Examinations and Class Standing.

Examinations are held twice a year, at the end of each term. In order to remain in the College a student must pass each term a satisfactory examination in at least eight hours of law work, that is, work occupying eight class room hours each week. A student, in order to be registered as a junior, must have satisfied all entrance conditions and passed at least twenty hours of first-year work (equivalent to two class-room hours each day for the year), and to be registered as a senior must have passed all first-year work and at least twenty hours of junior work. Irregular attendance or neglect of work is sufficient cause for the removal of a student from the College at any time. Special examinations for the removal of conditions are given in September, beginning on Tuesday of registration week. But no student who at the end of Junior year has ten or more hours of conditions will be permitted to take examinations to remove them, or be considered a candidate for graduation unless he has to his credit as many hours of the grade "good" or "excellent" as he has hours of "conditions."

College Court.

The College Court of the Junior Year is divided into clubs of ten or twelve members each. At each session a case is argued by two attorneys, while the rest of the Club, presided over by a member of the Faculty, act as judges. At the conclusion of the argument the judges render oral decisions, and one or more are then designated to prepare written opinions. The briefs and opinions are filed with the Librarian. The College Court of the Senior Year is a practice court held by the Professor of Procedure before whom cases are prosecuted and defended and motions and demurrers argued, in conformity with the procedure in the Supreme Court of the State of New York.

Practice Department.

It will be observed that in the above course of study the subject of Civil Procedure extends throughout the entire three years. As most students now go directly from the law school into practice without serving a preliminary clerkship in a law office, it has become necessary for the law school to provide the instruction in pleading and practice which formerly the student obtained during his law office clerkship. To this end one professor and an instructor devote their entire time to the department of civil procedure. The instruction in common law and equity pleading and practice is followed by a careful study of the New York Code of Civil Procedure, which is taken as a type of the reformed procedure in force in most of the states. Pleadings and motion papers are prepared by the students. These papers are discussed freely in the class-room by students and professor, defects pointed out and remedied, and the essentials of a proper pleading, petition or other paper stated and emphasized. The study of the Code is accompanied throughout by its practical application in the preparation of procedural papers. The object is to duplicate, as far as practicable, the work of a busy office, but to do it by a systematic development of the whole field of practice. Every paper passes through the hands of the professor or assistant and is carefully read and criticised before being returned to the student, while those which present an opportunity for general criticism are taken up for argument and discussion in the class-room.

It is the belief of the Faculty that this department presents on the whole a better opportunity for the systematic study of procedure than does the ordinary law office.

Electives in the College of Arts and Sciences.

Students registered in the above three-years' course may not elect work in the College of Arts and Sciences during their first year. Those who have satisfactorily completed their first year may elect not to exceed three hours during their Junior and Senior years respectively, but such electives must be regularly pursued. In the Department of Elocution and Oratory special classes are formed for the benefit of members of the College of Law who desire to elect work in Public Speaking. Electives may be taken only upon petition approved by both Faculties.

EQUIPMENT.

Boardman Hall. Boardman Hall is situated directly opposite the general library building and was erected for the exclusive use of the College of Law. It is a large three-story structure, 202 by 58 feet

built of Cleveland sandstone, with interior finish of oak, and practically fire-proof. On the first floor are three commodious lecture rooms and necessary cloak rooms. On the second floor are the offices of the several professors and rooms for the use of the club courts. On the third floor are the library rooms with accommodations for forty thousand volumes and three hundred readers.

Law Library. The library of the College of Law numbers about 33,000 volumes, to which generous additions are made yearly. It includes the well-known library of the late Nathaniel C. Moak of Albany, N. Y., which was presented in 1893 by Mrs. A. M. Boardman and Mrs. Ellen D. Williams, as a memorial to Judge Douglass Boardman, the first Dean of the College. This addition of the Moak collection to the law library makes the facilities not only unusually adequate to the needs of undergraduate students, but also, in connection with the University library, affords extensive opportunity for scholarly research by advanced students. In reports of the Federal courts, reports of the several American State jurisdictions, and in English, Scotch, Irish, Canadian and Australian reports, the law library is practically complete to date. The other English speaking countries are largely represented. The library also possesses a full complement of text books and statutes, and complete sets of substantially all law periodicals in English.

GRADUATION FROM THE COLLEGE.

Degree of Bachelor of Laws. The degree of Bachelor of Laws (LL.B.) is conferred upon all students who have met the entrance requirements and satisfactorily completed the prescribed work of the course. This course requires three years for its completion, and no student is allowed to graduate except after three years of actual residence unless in case of admission to advanced standing. In no case can a student take the degree unless he has been in residence for two years, and then only if, at the time of his admission, he passes a satisfactory examination in the work of the first year.

Certificate of Attendance. Each student who has been in regular attendance upon the college, whether entitled to a degree or not, may, on application to the Faculty, receive an official certificate of attendance, which states the time of his attendance and, if desired, the degree of his attainments. The certificate of a year's regular attendance, required by bar examiners, implies the completion of a full year's work (not less than fourteen hours per week) of which at least nine hours per week shall be in the year for which the certificate is granted.

SCHOLARSHIP PRIZE.

Boardman Senior Law Scholarship. A senior law scholarship of the value of one hundred dollars, the gift of Judge Douglass Boardman, the first Dean of the College, is awarded annually in June to the junior who during the preceding two years has, in the judgment of the Faculty, done the most satisfactory work in the College of Law.¹ It is available during the senior year and is payable in the same way as other University scholarships. This scholarship may be forfeited in case the faculty is satisfied that the holder has not maintained a high standard of work, or has been guilty of any conduct unbecoming the holder of such a scholarship.

Other Scholarships and Prizes are open to law students as well as to students in other colleges. (See pages 58-63).

FEES AND EXPENSES.

Tuition Fees. The fee for tuition for all law students, except special students, is \$100 a year, payable, \$55 at the beginning of the first term and \$45 at the beginning of the second term. The fee for special students in law is \$125 a year, payable \$70 at the beginning of the first term and \$55 at the beginning of the second term.

These fees must be paid at the office of the Treasurer within twenty days after registration for each term.

A fee of \$5 to cover expenses of graduation, degree, etc., is charged to each person taking the baccalaureate degree. This fee must be paid at least ten days before commencement.

Tuition is free to students with State Scholarships.

Expenses. The following is a fair estimate of the yearly expenses.

Tuition'	\$100 to \$125
Room, board, lights, fuel and laundry	160 to 325
Text-books	25 to 35
Total	\$285 to \$485

The additional expenses of a student depend so largely upon his personal tastes that it is difficult to give an estimate.

The expense of living in Ithaca varies, for board, room, fuel and lights, from \$4 to \$10 a week. By the formation of clubs, students often materially reduce their expenses.

Further information upon points not covered by this announcement may be had by addressing THE COLLEGE OF LAW, CORNELL UNIVERSITY, ITHACA, N. Y.

¹ Awarded for 1903-1904 to Edward Howard Davis. Awarded for 1904-1905 to Walter McMeekan.

THE MEDICAL COLLEGE.

The full four-year course of the Cornell University Medical College is given in the City of New York, but the first half of it—the work of the first and second years—is also given at Ithaca, where it may be taken by men students, and where alone it can be taken by women students (for whom a home is provided in the Sage College for Women). Both men and women students must take the last two years of the course in New York City. While it is not at present required, it is highly advantageous that students entering upon the study of medicine should have had a college or university training in the liberal arts and sciences; and for the benefit of such it has been arranged that students in the College of Arts and Sciences of Cornell University may elect in the Medical College certain studies, thereby shortening the time required for taking both the A.B. and M.D. degrees to seven years. The following announcement of the Medical College except where the contrary is specifically stated refers to the course as given in New York City.

MEDICAL COLLEGE COUNCIL.

At the foundation of the Medical College the following resolutions establishing a Medical College Council and determining its functions was adopted by the Board of Trustees of Cornell University :

Resolved, that for the purpose of making recommendations to the Board of Trustees or the Executive Committee in relation to the business management of the Medical College there be established, and there is hereby established a Medical College Council which shall consist of seven members, to-wit : the President of the University (who shall be *ex-officio* chairman), the Director of the Medical College and three trustees to be elected by the Board of Trustees or the Executive Committee, who shall be appointed, one for one year, one for two years, and one for three years, and their successors be appointed for three years, and two members of the Faculty, to be elected by the Faculty, who shall be appointed, one for one year, and one for two years, and their successors to be appointed for two years, and that all appointments to fill vacancies be made for unexpired terms.”

The Council at present consists of the following members :

JACOB GOULD SCHURMAN, President of the University and
Chairman *ex officio* of the Council.

WILLIAM M. POLK, Director of the Medical College.

H. W. SACKETT,
A. C. BARNES,
H. R. ICKELHEIMER,
L. A. STIMSON,
R. A. WITTHAUS,

} of the Board of Trustees.
} of the Faculty.

J. THORN WILLSON, Secretary.

FACULTY OF MEDICINE IN NEW YORK.

(For Faculty at Ithaca see later.)

JACOB GOULD SCHURMAN, A.M., D.Sc., LL.D., President, and
Chairman *ex officio* of the Council.

WILLIAM MECKLENBURG POLK, M.D., LL.D., Dean and Pro-
fessor of Gynaecology.

LEWIS A. STIMSON, A.B., M.D., LL.D., Professor of Surgery, Con-
sulting Surgeon to Bellevue Hospital and Surgeon to New York
and Hudson Street Hospitals.

RUDOLPH A. WITTHAUS, A.M., M.D., Professor of Chemistry,
Physics and Toxicology.

W. GILMAN THOMPSON, Ph.B., M.D., Professor of Medicine, Phy-
sician to the Presbyterian and Bellevue Hospitals.

GEORGE WOOLSEY, A.B., M.D., Professor of Anatomy and Clinical
Surgery, Surgeon to Bellevue Hospital, Associate Surgeon to the
Presbyterian Hospital.

HENRY P. LOOMIS, A.B., Ph.B., M.D., Professor of Materia Medi-
ca, Therapeutics and Clinical Medicine, Physician to the New
York and Bellevue Hospitals.

J. CLIFTON EDGAR, Ph.B., A.M., M.D., Professor of Obstetrics
and Clinical Midwifery, Attending Obstetrician to the Emergency
Hospital of Bellevue Hospital, Consulting Obstetrician to the City
Hospital.

AUSTIN FLINT, M.D., LL.D., Professor of Physiology, Consulting
Physician to Bellevue Hospital, President of the Consulting Medi-
cal Board of the Manhattan State Hospital for the Insane.

FREDERIC S. DENNIS, A.B., M.D., F.R.C.S., Professor of Clinical
Surgery, Surgeon to Bellevue and St. Vincent Hospitals.

FREDERICK GWYER, M.D., Professor of Operative and Clinical
Surgery, Surgeon to Bellevue and Beth Israel Hospitals.

- IRVING S. HAYNES, Ph.B., M.D., Professor of Practical Anatomy,
Surgeon to the Harlem Hospital.
- JAMES EWING, A.M., M.D., Professor of Pathology.
- JOSEPH E. WINTERS, M.D., Professor of Diseases of Children,
Physician to Willard Parker Hospital.
- CHARLES STEDMAN BULL, A.M., M.D., Professor of Ophthalmology, Surgeon to New York Eye and Ear Infirmary, Consulting Ophthalmic Surgeon to St. Luke's and Presbyterian Hospitals.
- NEWTON M. SHAFFER, M.D., Professor of Orthopædic Surgery,
Surgeon-in-Chief of the New York State Hospital for the Care of Crippled and Deformed Children, Consulting Orthopædic Surgeon to St. Luke's and the Presbyterian Hospitals, Consulting Surgeon to the New York Infirmary for Women and Children.
- CHARLES L. DANA, A.M., M.D., Professor of Diseases of the Nervous System, Physician to Bellevue Hospital, Neurologist to the Montefiore Home.
- SAMUEL ALEXANDER, A.M., M.D., Professor of Diseases of the Genito-Urinary System, Surgeon to Bellevue Hospital, and to the Montefiore Home.
- GEORGE THOMSON ELLIOT, A.B., M.D., Professor of Dermatology, Consulting Dermatologist to St. Luke's, Columbus, and New York Lying-in Hospitals.
- CHARLES H. KNIGHT, A.M., M.D., Professor of Laryngology, Surgeon to the Manhattan Eye and Ear Hospital, Throat Department.
- ALEXANDER LAMBERT, A.B., Ph.B., M.D., Professor of Clinical Medicine, Physician to Bellevue Hospital.
- FRANCIS W. MURRAY, A.B., M.D., Professor of Clinical Surgery, Surgeon to New York Hospital, and Consulting Surgeon to St. Luke's Hospital.
- CHARLES E. NAMMACK, Ph.B., M.D., Professor of Clinical Medicine, Physician to Bellevue Hospital.
- FREDERICK KAMMERER, M.D., Professor of Clinical Surgery, Surgeon to the German, and St. Francis Hospitals.
- PERCIVAL R. BOLTON, Ph.B., M.D., Professor of Clinical Surgery, Surgeon to the New York Hospital.
- WARREN COLEMAN, A.M., M.D., Professor of Clinical Medicine, Instructor in Materia Medica, Therapeutics, and Clinical Medicine, Assistant Visiting Physician to Bellevue Hospital.
- LEWIS A. CONNER, Ph.B., M.D., Professor of Clinical Medicine, Instructor in Medicine, Attending Physician to the Hudson Street Hospital.

ALEXANDER B. JOHNSON, Ph.B., M.D., Professor of Clinical Surgery, Surgeon to the New York Hospital.

BERTRAM H. BUXTON, A.B., M.D., Professor of Experimental Pathology.

FREDERICK WHITING, A.M., M.D., Professor of Otology, Aural Surgeon to New York Eye and Ear Infirmary, and Surgeon to St. Bartholomew's Clinic.

ADOLF MEYER, M.D., Professor of Mental Diseases.

IVIN SICKELS, M.S., M.D., Assistant Professor of Chemistry and Physics.

JOHN A. HARTWELL, Ph.B., M.D., Assistant Professor of Physiology, and Instructor of Physiology, Surgeon to the Lincoln Hospital, Adjunct Assistant Surgeon to Bellevue Hospital.

JOHN ROGERS, JR., A.B., Ph.B., M.D., Secretary of the Faculty.

Lecturers.

CHARLES N. BANCKER CAMAC, A.B., M.D., Lecturer on Medicine.

JOSEPH FRAENKEL, M.D., Lecturer on Neurology.

CHARLES L. GIBSON, A.B., M.D., Lecturer on Surgery.

EDWARD L. KEYES, JR., A.B., M.D., Lecturer on Surgery.

MAX G. SCHLAPP, M.D., Lecturer on Pathology.

OTTO H. SCHULTZE, A.B., M.D., Lecturer on Pathology.

BENJAMIN T. TILTON, A.B., M.D., Lecturer on Surgery.

JOHN McGAW WOODBURY, A.B., M.D., M.R.C.S., Lecturer on Municipal Sanitation.

Instructors.

HEADS OF SUB-DEPARTMENTS.

JEREMIAH S. FERGUSON, M.S., M.D., Instructor in Histology.

THOMAS WOOD HASTINGS, A.B., M.D., Instructor in Clinical Pathology.

LOUIS W. RIGGS, A.M., Ph.D., Instructor in Chemistry and Physics.

EDMUND PENDLETON SHELBY, A.B., M.D., Instructor in Pharmacology and Therapeutics.

OTTO H. SCHULTZE, A.B., M.D., Instructor in Gross Pathology.

LETCHWORTH SMITH, A.B., M.D., Instructor in Bacteriology.

CHARLES G. L. WOLF, A.B., C.M.M.D., Instructor in Physiological Chemistry.

Instructors and Assistants.

ALVIN W. BAIRD, A.B., Assistant in Physiology.

CHARLES N. B. CAMAC, A.B., M.D., Instructor in Medicine.

THEODORE B. BARRINGER, A.B., M.D., Instructor in Clinical Medicine.

- GEORGE PATTEN BIGGS, M.D., Demonstrator of Gross Pathology.
CHARLES W. O. BUNKER, A.B., Assistant in Embryology.
JOHN W. COE, Ph.B., M.D., Assistant in Clinical Pathology.
JOHN F. CONNORS, M.D., Demonstrator of Anatomy.
GEORGE EUGENE DODGE, B.S., M.D., Instructor in Operative Surgery.
WILLIAM A. DOWNES, M.D., Instructor in Operative Surgery and Demonstrator of Anatomy.
WILLIAM J. ELSEY, M.D., Instructor in Pathology.
FRANK S. FIELDER, Ph.B., M.D., Demonstrator of Anatomy.
CHARLES L. GIBSON, A.B., M.D., Instructor in Surgery.
GEORGE D. HAMLEN, A.M., M.D., Instructor in Obstetrics and Gynaecology.
ROBERT ANTHONY HATCHER, Ph.G., M.D., Instructor in Pharmacology.
JAMES MORLEY HITZROT, A.B., M.D., Instructor in Surgery.
J. RAMSEY HUNT, M.D., Instructor in Neurology.
LEOPOLD JACHES, M.D., Assistant in the Pathology and Histology of the Nervous System.
JAMES C. JOHNSTON, A.B., M.D., Instructor in Pathology and Dermatology.
FREDERICK L. KEAYS, A.B., M.D., Instructor in Medicine and Physical Diagnosis.
BURTON J. LEE, A.B., M.D., Demonstrator of Anatomy.
HENRY T. LEE, M.D., Assistant in Pathology.
GUY D. LOMBARD, M.D., Assistant in Histology.
R. H. MACUMBER, A.B., Assistant in Chemistry.
ALBERTUS A. MOORE, M.D., Instructor in Obstetrics.
WALTER LINDSAY NILES, M.D., Instructor in Medicine.
JOHN J. NUTT, M.D., Assistant in Anatomy.
JOHN ROGERS, JR., A.B., Ph.B., M.D., Instructor in Clinical Surgery.
JOSEPH C. ROPER, M.D. Assistant in Histology.
MONTGOMERY H. SICARD, B.S., M.D., Instructor in Physical Diagnosis.
WILLIAM F. STONE, Ph.B., M.D., Instructor in and Demonstrator of Anatomy.
ISRAEL STRAUSS, M.D., Instructor in Embryology.
BENJAMIN T. TILTON, A.B., M.D., Instructor in Surgery.
JOHN C. TORREY, M.D., Assistant in Histology and Bacteriology.
GEORGE GRAY WARD, M.D., Instructor in Gynaecology.
MORTIMER WARREN, M.D. Assistant in Clinical Pathology.
JOSEPH S. WHEELWRIGHT, A.B., M.D., Assistant in Anatomy and Physiology.

Clinical Instructors.

- JOHN ASPELL, A.B., M.D., Clinical Instructor in Gynæcology.
CHARLES C. BARROWS, A.M., M.D., Clinical Instructor in Gynæcology.
RUSSELL BELLAMY, M.D., Clinical Instructor in Obstetrics and Cynæcology.
WILLIAM S. BRYANT, M.D., Clinical Instructor in Otology.
GEORGE E. DGDGE, A.B., M.D., Clinical Instructor in Surgery.
ALEXANDER DUANE, A.B., M.D., Clinical Instructor in Ophthalmology.
WALTER A. DUNCKEL, M.D., Clinical Instructor in Diseases of Children.
FRANCIS C. EDGERTON, B.S., M.D., Clinical Instructor in Diseases of the Genito-Urinary System.
P. HENRY FITZHUGH, M.D., Clinical Instructor in Orthopædic Surgery.
JOSEPH FRAENKEL, M.D., Clinical Instructor in Diseases of the Nervous System and Psychiatry.
J. PRESCOTT GRANT, M.D., Clinical Instructor in Surgery.
ISIDORE L. HILL, M.D., Clinical Instructor in Obstetrics.
ARCHIBALD E. ISAACS, M.D., Clinical Instructor in Surgery.
GEORGE B. McAULIFFE, A.B., M.D., Clinical Instructor in Otology.
ALBERTUS A. MOORE, M.D., Clinical Instructor in Obstetrics.
JAMES E. NEWCOMB, A.B., M.D., Clinical Instructor in Laryngology and Rhinology.
EDWARD PISKO, M.D., Clinical Instructor in Dermatology.
ROBERT G. REESE, Ph.G., M.D., Clinical Instructor in Ophthalmology.
GUSTAVE SEEJIGMANN, M.D., Clinical Instructor in Obstetrics.
WILLIAM SHANNON, A.B., M.D., Clinical Instructor in Diseases of Children.
WILLIAM F. STONE, Ph.B., M.D., Clinical Instructor in Surgery.
HENRY H. WHITEHOUSE, Ph.B., M.D., Clinical Instructor in Dermatology.
PERCY H. WILLIAMS, A.B., M.D., Clinical Instructor in Surgery.

Clinical Assistants.

- ROBERT STAUNTON ADAMS, A.B., M.D., Clinical Assistant in Diseases of Children.
DONALD BARSTOW, M.D., Clinical Assistant in Otology.
FRANK T. BURKE, M.D., Clinical Assistant in Laryngology and Rhinology.

- EARLE CONNER, M.D., Clinical Assistant in Otology.
H. E. COOK, M.D., Clinical Assistant in Otology.
GEORGE W. CRARY, M.D., Clinical Assistant in Dermatology.
ROBERT M. DALEY, M.D., Clinical Assistant in Diseases of the Nervous System.
SAMUEL M. EVANS, M.D., Clinical Assistant in Diseases of Children.
JOHN H. P. HODGSON, M.D., Clinical Assistant in Diseases of Children.
ARTHUR HOLDING, M.D., Radiographist.
LESTER M. HUBBY, Ph.B., M.D., Clinical Assistant in Diseases of Children.
WILLIAM J. JONES, M.D., Clinical Assistant in Therapeutics.
WALTER C. KLOTZ, M.D., Clinical Assistant in Diseases of the Genito-Urinary System.
GEORGE W. KUNZ, M.D., Clinical Assistant in Otology.
CHARLES MACK, A.B., M.D., Clinical Assistant in Laryngology and Rhinology.
LESLIE J. MEACHAM, M.D., Clinical Assistant in Diseases of the Nervous System.
JOHN ENGLISH McWHORTER, M.D., Clinical Assistant in Diseases of the Genito-Urinary System.
PERRY SCHOONMAKER, M.D., Clinical Assistant in Laryngology and Rhinology.
HENRY SCOTT, M.D., Clinical Assistant in Orthopaedic Surgery.
HANS J. SCHWARTZ, M.D., Clinical Assistant in Dermatology.
ELISHA MATHER SILL, M.D., Clinical Assistant in Diseases of Children.
HORACE S. STOKES, M. D., Clinical Assistant in Diseases of Children.
FRANK CLARK YEOMANS, A.B., M.D., Clinical Assistant in Diseases of the Genito-Urinary System.

Dispensary Staff.

DEPARTMENT OF MEDICINE.

- CHARLES N. B. CAMAC, M.D., Chief of Staff.
MONTGOMERY H. SICARD, M.D., Assistant Attending Physician.
THEODORE B. BARRINGER, M.D., Assistant Attending Physician.
WILLIAM J. JONES, M.D., Assistant Attending Physician.
THOMAS W. HASTINGS, M.D., Assistant Attending Physician,
WILLIAM ARMSTRONG, M.D., Assistant Attending Physician.
FREDERICK L. KEAYS, M. D., Assistant Attending Physician.

WILLIAM R. STONE, M.D., Assistant Attending Physician.
 JOSIAH P. THORNLEY, M.D., Assistant Attending Physician.
 JOSEPH STORER WHEELWRIGHT, M.D., Assistant Attending Physician.
 LEONARD G. WEBER, M.D., Assistant Attending Physician.
 H. J. SCHWARTZ, M.D., Assistant Attending Physician.
 WALTER L. NILBS, M.D., Assistant Attending Physician.

DEPARTMENT OF SURGERY.

WILLIAM F. STONE, M.D., Attending Surgeon.
 GEORGE EUGENE DODGE, M.D., Attending Surgeon.
 J. PRESCOTT GRANT, M.D., Attending Surgeon.
 PERCY H. WILLIAMS, M.D., Attending Surgeon.
 EDWARD W. PINKHAM, M.D., Assistant Attending Surgeon.
 JOSEPH A. ROBERTSON, M.D., Assistant Attending Surgeon.

DEPARTMENT OF OBSTETRICS AND GYNÆCOLOGY.

GEORGE D. HAMLEN, M.D., Chief of Staff.
 GEORGE G. WARD, M.D., Attending Gynæcologist.
 RUSSELL BELLAMY, M.D., Attending Gynæcologist.
 CHARLES E. CARTER, M.D., Assistant Attending Gynæcologist.
 EDWARD W. PETERSON, M.D., Assistant Attending Gynæcologist.

DEPARTMENT OF GENITO-URINARY DISEASES.

FRANCIS C. EDGERTON, M.D., Chief of Staff.
 WALTER C. KLOTZ, M.D., Attending Surgeon.
 JOHN E. McWHORTER, M.D., Assistant Attending Surgeon.
 P. E. K. JOHNSON, M.D., Assistant Attending Surgeon.
 A. J. GILMOUR, M.D., Assistant Attending Surgeon.

DEPARTMENT OF NEUROLOGY.

JOSEPH FRAENKEL, M.D., Chief of Staff.
 J. RAMSEY HUNT, M.D., Attending Physician.
 ROBERT M. DALEY, M.D., Assistant Attending Physician.
 LESLIE J. MEACHAM, M.D., Assistant Attending Physician.

DEPARTMENT OF PEDIATRICS.

WALTER A. DUNCKEL, M.D., Chief of Staff.
 WILLIAM SHANNON, M.D., Attending Physician.
 HORACE S. STOKES, M.D., Assistant Attending Physician.
 ALBERT EWING CHILDS, M.D., Assistant Attending Physician.
 JOSEPH S. WHEELWRIGHT, M.D., Assistant Attending Physician.
 EDWARD HAND, M.D., Assistant Attending Physician.

ALFRED W. HASKELL, M.D., Assistant Attending Physician.

A. S. KELLY, M.D., Assisting Attending Physician.

THOMAS C. CHALMERS, M.D., Assistant Attending Physician.

GEORGE DOW SCOTT, M.D., Assistant Attending Physician.

DEPARTMENT OF DERMATOLOGY.

JAMES C. JOHNSTON, M.D., Chief of Staff.

EDWARD PISKO, M.D., Attending Surgeon.

GEORGE W. CRARY, M.D., Assistant Attending Surgeon.

HANS J. SCHWARTZ, M.D., Assistant Attending Surgeon.

DEPARTMENT OF OTOTOLOGY.

GEORGE B. McAULIFFE, M.D., Chief of Staff.

WILLIAM S. BRYANT, M.D., Attending Surgeon.

EARLE CONNER, M.D., Assistant Attending Surgeon.

H. E. COOK, M.D., Assistant Attending Surgeon.

DONALD BARSTOW, M.D., Assistant Attending Surgeon.

GEORGE W. KUNZ, M.D., Assistant Attending Surgeon.

DEPARTMENT OF LARYNOLOGY.

JAMES E. NEWCOMB, M.D., Chief of Staff.

FRANK T. BURKE, M.D., Assistant Attending Surgeon.

CHARLES MACK, M.D., Assistant Attending Surgeon.

ALBERT C. BARDES, M.D., Assistant Attending Surgeon.

EDWARD J. CONNELL, M.D., Assistant Attending Surgeon.

WALTER C. MONTGOMERY, M.D., Assisting Attending Surgeon.

PERRY SCHOONMAKER, M.D., Assistant Attending Surgeon.

DEPARTMENT OF ORTHOPÆDICS.

P. HENRY FITZHUGH, M.D., Attending Surgeon.

HENRY SCOTT, M.D., Attending Surgeon.

DEAS MURPHY, M.D., Assistant Attending Surgeon.

FANEUIL S. WEISSE, M.D., Assistant Attending Surgeon.

JOHN J. NUTT, M.D., Assistant Attending Surgeon.

DEPARTMENT OF OPHTHALMOLOGY.

ROBERT G. REESE, M.D., Chief of Staff.

ALEXANDER DUANE, M.D., Attending Surgeon.

G. W. VANDERGRIFT, M.D., Assistant Attending Surgeon.

WILMOT B. ALLEN, M.D., Assistant Attending Surgeon.

**J. THORN WILLSON, Managing Clerk of the College,
First Avenue, Twenty-seventh and Twenty-eighth Streets.**

GENERAL STATEMENT.

The Medical Department of Cornell University was established in 1898. This undertaking, which had been contemplated by the Trustees for several years, was made possible by the gift to the University of a commodious and fully equipped building designed for medical instruction, and by the bestowal of a sufficient "Endowment Fund" for the generous maintenance of a large and vigorous school for higher education in medicine.

The Main College Building comprises a Medical School and Dispensary, with principal entrance on First Avenue, opposite Bellevue Hospital, and occupies the entire block between Twenty-seventh and Twenty-eighth Streets on First Avenue, extending back 100 feet, thus affording an available space of nearly 20,000 feet on each floor. The building is designed in a severe style of Renaissance architecture, and is constructed of Indiana limestone and red brick.

The Loomis Laboratory (founded 1886) serves the purpose of undergraduate instruction, in connection with the laboratories in the College building, in such subjects as can best be taught in a laboratory, and it is also especially available to graduates in medicine who may desire to pursue further study or original research in the various departments of laboratory investigation.

The Metropolitan Street Railroad cars on Twenty-eighth and Twenty-ninth Streets and First Avenue connect with all the other lines of the company, by a system of transfers at Fourteenth, Twenty-third, Thirty-fourth, and Fifty-ninth Streets, and so put all the hospitals in the city within easy access of the College. A convenient station of the Manhattan Elevated Railroad is also at Twenty-eighth Street and Third Avenue.

CLINICAL FACILITIES.

The College Dispensary.—One-half of the college building is allotted to the Dispensary, in which ample provision has been made for the accommodation of the various clinical departments, of which there are eleven, viz. : General Surgery, General Medicine, including the diseases of the Heart and Lungs, Gynæcology and Obstetrics, Diseases of Children, of the Nervous System, of the Genito-Urinary System, of the Skin, Eye, Ear, Nose and Throat, and Orthopaedic Surgery.

Each Department has been furnished with all the instruments and apparatus necessary for the examination and treatment of patients. A number of small amphitheatres are placed in the Dispensary, so

that the clinical instruction provided by the curriculum can be carried on without interfering with the treatment of patients.

The attendance in the Dispensary averages 500 patients daily, and is steadily increasing, so that the clinical material is abundant and accessible.

Members of the Faculty of Cornell Medical College hold appointments in the hospitals and dispensaries of the city, and are thus enabled to utilize for teaching purposes a great quantity and variety of clinical material. The most important and best of these hospitals are the Bellevue, New York, Presbyterian, German, St. Vincent, Gouverneur, Hudson Street, Willard Parker and Reception Hospitals, and the New York Eye and Ear Infirmary. Others are utilized from time to time as necessity or opportunity arises. The major part of the bedside and clinical instruction, is, however, conducted in Bellevue Hospital, which is directly opposite the College.

This hospital has 900 beds, and receives 24,000 patients annually. It contains an amphitheatre capable of seating 300 students, and also a number of small, newly built operating theatres, where section demonstrations in surgery and gynaecology are made before the class. Connected with the hospital is a hydropathic establishment where students are shown the practical applications of baths, douches, massage, etc.

ADMISSION TO THE COLLEGE.

For admission to the first year class at Ithaca communications should be addressed to the Registrar, Ithaca, N. Y.; at New York City, to the Secretary, 28th St. and First Ave., New York City. See below and pages 33, 54.

For admission to advanced standing from other colleges and universities, communications should be directed to Secretary of Faculty, Stimson Hall, Ithaca, N. Y.; or to the Secretary of the Faculty, 28th St. and First Ave., New York City.

Requirements for Admission.

The laws of New York State require of the prospective student of medicine a preliminary education equivalent to that obtainable in a four years' course in any academy or high school recognized by the Regents as maintaining a satisfactory standard, before the applicant can be admitted to any class in any medical college in the State. A list of the subjects ordinarily taught in these schools is given in handbook No. 3 published by the Regents, and mailed on application to the "Regent's Office, Albany, New York." In this it will be found that each subject, according to its character and the time usually de-

voted to it, is assigned one or more "counts," 48 of which are needed to obtain the medical-student certificate. This official approval of the preliminary education may be granted by the Regents on presentation to them of properly attested evidence that the requisite work was accomplished in a registered institution. In lieu of this the applicant is required to pass the examinations conducted by the State authorities at regular intervals throughout the year.

As the ordinary 48 count "Medical Student Certificate" required by law can be obtained with little or no knowledge of the English language, and of subjects which are absolutely essential to a proper understanding of any natural science, the Faculty decided that (beginning with the class entering in October, 1902) all applicants for admission must earn their medical-student certificate in part upon the following subjects, as described in the Regents' "Hand-book No. 3, High School Department Examinations":

Algebra, 4 counts; Plane Geometry, 4 counts; Elementary United States History and Civics, or its equivalent, 2 counts; Second-Year English, or its equivalent, 8 counts; Second-Year Latin, or the first four books of Cæsar's "Commentaries," or First-Year Latin and First-Year German, French, or Spanish, 8 counts. Total, 26 counts.

The subject-matter covered in these requirements, which must be included in the Regents' certificate, is briefly summarized as follows:

Algebra includes the elements of the subject through quadratic equations.

Plane Geometry includes the geometry of the plane, the ordinary definitions, and demonstrations of simple original theorems.

Elementary United States History and Civics, or its equivalent, includes important historical dates, the character and purpose of the different wars, the purport of the Constitution, and the relation of the Federal and State governments.

Second-Year English comprises (1) composition, including the theory of construction in prose; (2) terms of style, figures of speech, and prosody; (3) literature, *i.e.*, a knowledge of "Twice-Told Tales," "Sir Roger de Coverly" papers, "Sesame and Lilies," "Ancient Mariner," "Cotter's Saturday Night," "Vision of Sir Launfal," "Silas Marner," "Julius Cæsar," "First Bunker Hill Oration."

Second-Year Latin includes a knowledge of grammar and the ability to translate at sight simple passages from any standard author, or from the first four books of Cæsar's "Commentaries." The alternative to Second-Year Latin, namely, First-Year Latin with First-Year German, French, or Spanish, comprises under the heading, First-Year Latin, a knowledge of grammar, the rendering of simple prose

from Latin into English, and *vice versa*. Under the heading of First-Year German, French, or Spanish, a similar knowledge is required.

The total number of counts allowed by the Regents for these required subjects aggregate 26. The Faculty recommends that the remaining 22 counts necessary to complete the certificate be made up from the following subject-groups enumerated in the Handbook: Science; Mathematics; Language and Literature; History and Social Science.

Students who can earn a portion of these 22 counts upon Physics and Inorganic Chemistry, as is earnestly recommended, may be given credit for them, and the time thus gained will be devoted to intensive work in the medical branches.

As heretofore, those applicants who have successfully completed the first year in any college or university recognized by the Regents as maintaining a proper standard will be admitted to the first year of the medical course on presentation of the usual Regents' certificate, together with evidence of their year or years of college training. Attention is again called to the fact that the Medical College holds no entrance examinations, and therefore the applicant for admission must, except in the case of those who had had one or more years in college or university, present the special Cornell Medical-Student Certificate granted by the Regents to those who have fulfilled the requirements, or must have the Regents' endorsement on the certificate that the requirements have been complied with.

Proposed Course for the Degree in Arts (A.B.) and in Medicine (M.D.).

As a liberal education in the arts and sciences is of great advantage to prospective students of medicine, all who can, are urged to take the Freshman, Sophomore, and Junior years in the Academic Department at Ithaca. After the completion of these years in the Academic Department (in which all the work is elective) the student is permitted to elect, as the fourth year of his A.B. course and first year of his M.D. course, a year's work in the Medical Department at Ithaca. He may then take his fifth year of work—the second of the medical course—either in Ithaca or in New York; but he must take the last two years of the medical course in New York. In this way he will obtain the A.B. degree at the end of four years, and the M.D. degree at the end of seven years of study. This is possible because the first two years of the medical course in New York are offered in duplicate at the University in Ithaca.

Women must take the first two years in medicine in Ithaca, where special accommodations are provided for them in the Sage College.

They are received at the Medical College in New York City in the third and fourth years only.

Students who have taken the A.B. degree, as above, will, if they have anticipated in the Academic Department the scientific studies prescribed in the medical course, be admitted to advanced standing in the Medical College in New York. Those who have completed all the subjects prescribed for the first two years of the course in medicine will be admitted to the third-year class. After passing the requisite examinations at the end of this and then of the fourth year, they will be advanced to practically a fifth year, consisting almost entirely of practical training. At its close, providing the work has been satisfactory, the M.D. degree will be conferred. As this fifth year gives opportunity for more than the requisite work, students who have taken the A.B. degree in the Academic Department may, even if deficient in one or more of the prescribed subjects of the medical course, still be admitted to the third-year class in New York, but only upon the recommendation of the Medical Faculty at Ithaca.

The schedule of this fifth year will be somewhat as follows :

There will be weekly recitations in the subjects of Medicine, Surgery, Anatomy, Materia Medica, and Therapeutics, and Obstetrics and Gynaecology. A competent corps of instructors is suggested by the Faculty, but the students are at liberty to make their own selection and financial arrangements in quizzing, the chief object of which is preparation for the competitive examinations for the appointment of internes held each spring by the various hospitals. The fee for such "quizzes" averages about \$100, and the time will be from 5 to 6 P.M., or at any other convenient hour daily. The rest of the day is to be devoted to practical training in the College dispensary and laboratories. In the dispensary the departments of general medicine and general surgery hold, or are to hold, morning sessions. The afternoon hours are devoted to the nine specialty departments of Neurology, Gynaecology, Pediatrics, Laryngology, Orthopedic Surgery, Dermatology, Ophthalmology, Otology, and Diseases of the Genito-Urinary System.

The Ithaca students who take this fifth year will act as regularly appointed clinical assistants in these various departments for the twelve months following the conclusion of their fourth year of medicine. Groups of five will serve during the morning hours, on alternate days, in the Departments of General Medicine and Surgery. At the end of six months those who have had the privilege of selecting in the order of standing at the end of the fourth year general medicine will change to general surgery, and *vice versa*. In the mornings

of the days when not engaged in the dispensary these groups of five students will report in one of the laboratories of clinical or histological pathology or bacteriology and, as they may elect, either pursue research work upon a subject to be selected after consultation with Professor Ewing, or act as assistant (unpaid) instructors in the classroom work in these laboratories. The results of research work, if satisfactory, will be included in the regular publications of the department of Pathology.

During the afternoons, groups of not more than three students will serve in rotation as clinical assistants in each of the nine specialty departments of the dispensary. The length of time spent in each department will vary somewhat with the number of students and the duration of vacation desired; but at present it is expected that about one month will be devoted to daily attendance in each specialty. It is the intention of the Faculty to allow the utmost liberty in the selection of courses consistent with the acquirement of a thorough, general and practical education. For this reason, if desired, the student will be assisted in obtaining the position of clinical assistant in any dispensary or department of a dispensary which supplies opportunities equivalent to those offered by the College. The internes in the various city hospitals are often forced to absent themselves from duty on account of sickness or other reasons. The members of the Faculty who visit such hospitals can thus frequently supply substitutes from competent students for longer or shorter periods. Such places, of course, cannot be promised in advance, but may confidently be expected by a greater or less number.

The required work of this fifth year is then briefly summarized as follows:

A quiz of at least one hour a week in each of the subjects of Medicine, Surgery, Anatomy, Materia Medica and Therapeutics, and Obstetrics and Gynaecology from October to April inclusive. At least two hours' daily service for four months each (preferably in the morning) in general medicine and general surgery in the College dispensary; at least two hours' daily service for one month (preferably in the afternoon) in each of the nine specialty departments of the College. If any of the work is elected in another dispensary or hospital, it must be one under the supervision of some member of the Faculty.

The fees for this year will be \$100, payable in advance to the College; and a graduation fee of \$25, payable at the end of the fifth year; and the fee payable to the quiz masters, of not more than \$100.

Registration and Matriculation. Students on entering the College must register and pay the registration fee of \$5. The payment

of this fee is required only once. They will receive a receipt which will be exchanged for a certificate of full matriculation when they shall have complied with the requirements stated on page 22. No conditional matriculation will be accepted. The full 48 count Regents' certificate, including the 26 counts in the subjects specified, must be presented.

Advantages Gained by Preliminary Education. Graduates of Cornell, Yale, Harvard, Princeton, University of Pennsylvania, Johns Hopkins, Columbia, University of Michigan, and other accredited universities, who have taken either a preparatory medical course or special work in organic or inorganic chemistry, physics, or physiology, will be allowed credit for the work which they have done, and may be excused from the recitations upon these subjects, and from the exercises of the chemical laboratory in the first year, provided they pass examinations before the professors of these departments, and provided they give to dissection and electives as described on pages 37-38, in the various departments, a full equivalent in hours to the subject they may have passed by examination.

Students who have had training in microscopical technique or in histology will be given advanced work in the histological laboratory.

Admission to Advanced Standing. Students who have already attended the requisite number of courses in other accredited medical colleges, may be admitted to advanced standing in any one of the years of the four years' course of the Cornell University Medical College, by presenting the requisite Cornell Regents' medical student certificate and by passing examinations in the subjects described on pages 84-86 as completed, in the year or years previous to that which the student desires to enter. The applicant must also present certificates of having satisfactorily completed laboratory courses equivalent to those required of the Cornell medical students in the year or years previous to that to be entered.

According to law, no student from a Medical School which has not been registered by the Regents may obtain a degree on less than two years of medical study in this State.

Holders of Special Degrees. Graduates of pharmacy or of dental or veterinary or other professional schools, who can present satisfactory evidence of having completed any course of study required in any year by this College, may upon passing a satisfactory examination be excused from attendance upon instruction in that subject, provided they take equivalent additional work in other branches.

Admission to Special Courses. Graduates in medicine, or students who desire to pursue a special course without graduation, are

admitted to registration as special students, after approval by the head of the department conducting the course, without Regents' or other preliminary examination. Such special courses do not count in any way as part of the four years' course required of candidates for the degree of doctor in medicine. Further information regarding such courses, fees, etc., may be obtained by addressing the Secretary of the Cornell University Medical College, First Avenue, 27th to 28th Streets, New York.

NEW YORK STATE SCHOLARSHIPS.

Under the law of the State, the Commissioner of Education is empowered to award annually a number of free scholarships in Cornell University equal to the number of Assembly Districts in the State. These scholarships entitle the holder to free tuition for four years in any department of Cornell University. They are awarded on examination to candidates from the general Assembly Districts "in consideration of their superior ability and as a reward for superior scholarship in the academies and public schools of this State."

For particulars in regard to these scholarships, application should be made to the Commissioner of Education at Albany, N. Y.

Holders of State scholarships are notified that failure to register before the close of registration day involves the severance of their connection with the University and consequently the forfeiture of their scholarships. The President of the University is required by law to send immediate notice of such vacancies to the Commissioner of Education and the Commissioner fills vacancies forthwith.

UNIVERSITY UNDERGRADUATE SCHOLARSHIPS.

Pursuant to the action of the Trustees, there will annually be thrown open to competition for all members of the freshman or first-year class who are registered in courses leading to first degrees, at a special examination held at Ithaca, at the beginning of the freshman year, eighteen scholarships of the annual value of \$200.

Students of high ability from the State of New York will have the additional advantage of being able to secure State scholarships, as there is nothing in the University statutes to prevent a student from holding both a State scholarship and a University scholarship.

These scholarships will be given for passing examinations which shall average the highest in any three of the following groups, of which group (a) must be one. Previous to entering this competitive examination, however, candidates are required to pass satisfactorily the regular entrance examination in English, or the entrance examin-

ation in English given by the College Entrance Examination Board. *School certificates, Regents' diplomas, and normal school diplomas* are not accepted in place of this English examination.

(a) Plane geometry and algebra through quadratic equations.

(b) Solid geometry, advanced algebra, plane and spherical trigonometry. (c) Greek. (d) Latin. (e) French. (f) German.

For further information in regard to the scholarships see the Register of Cornell University.

CHARGES FOR INSTRUCTION.

First Year.

Registration*	.....	\$ 5 00
Tuition	.....	150 00
Laboratory fees	.....	35 00
		<u>\$190 00</u>

Second Year.

Tuition	.....	\$150 00
Laboratory fees	.....	30 00
		<u>\$180 00</u>

Third Year.

Tuition	.....	\$150 00
Laboratory fees	.....	30 00
		<u>\$180 00</u>

Fourth Year.

Tuition	.....	\$150 00
Laboratory fees	.....	25 00
Graduation fees	.....	25 00
		<u>\$200 00</u>

Each student in the first three years is required to pay to the Clerk of the College ten (\$10) dollars each year to cover breakage in the laboratories. This sum, less the amount charged against it for breakage, will be returned to him at the end of each year.

Tickets must be taken out and paid for at the beginning of the session.

Special Students.

Special students, on the recommendation of the head of the department concerned, may be admitted to any of the courses of instruction offered in the College, or to any course of instruction especially provided, on the payment of a registration fee of five dollars and a tuition fee of twenty-five dollars, except in dissection, where the tuition fee is fifteen dollars.

* The registration fee is payable only once, on entrance.

The graduation fee is payable on registering for graduation. The tuition fees for the first two years at Ithaca are identical with those of the same period in New York. All fees are payable at the beginning of the term, but in special cases they may be paid semi-annually in advance. No rebate will be made in any case.

No remission of laboratory fees will be made because of previous instruction elsewhere in the subjects.

GENERAL STATEMENT OF THE PLAN OF INSTRUCTION.

The chief features in the scheme of instruction are thorough laboratory training in all the subsidiary branches, daily recitations from standard text-books, clinical teaching in dispensaries and at the bedside in hospitals, and enough didactic lectures to make clear the general principles and conflicting theories in the practice of medicine and surgery. All students in any one class advance simultaneously in the various subjects, and no section or group works apart from any other, thereby losing the opportunity to appreciate the relationship of the different subjects which at any given time may be under discussion. Allowance, however, has been made for those who through natural endowments or superior energy or previous education can outstrip their less fortunate fellows. A careful record is kept of the attendance and character of the work of every student, and by this means at the end of the year each is placed in the section to which this record entitles him. A system of electives in clinical, laboratory, and recitation work is also provided, which it is the aim of the Faculty to enlarge as opportunities arise. A student is required to master all the subjects taught in any given year before being allowed to advance to the next, as the knowledge acquired in each year is necessary for a proper understanding of that which follows. Examinations are held at the end of each session; a failure to pass not more than two subjects, one of which at least must be a laboratory subject, is allowed in the spring, but every subject must be satisfactorily passed at the beginning of the next ensuing college year, or the applicant will be compelled to repeat the work of the preceding year.

The essential feature of the entire system is the division of the classes of the several years into small sections for recitations, demonstrations, laboratory exercises, and for clinical instruction in the college dispensary, and in the wards of the numerous hospitals attended by the members of the faculty.

The following is a statement of the curriculum in each of the four annual sessions necessary to obtain the degree of M.D., and attention is called to the careful arrangement of the instruction in time and correlation in subject-matter so as to provide for a proper understanding and assimilation of the knowledge imparted in the different departments.

If a student, without neglecting his required schedule work, desires to take advanced work and can make an opportunity to do this, without interfering with the work of other students, he shall be permitted to do so and shall receive credit for it.

The first year is devoted to anatomy, several consecutive uninterrupted hours being provided for dissection—embryology, normal histology, chemistry and physics. The gross anatomy of the thoracic, abdominal, and pelvic viscera is demonstrated in outline in the early weeks of the session in anticipation of the examination of these organs in the histological laboratory and a consideration of their physiology in the second half of the session.

The general principles of mechanics, hydrostatics, optics, electricity, heat and acoustics, and their application to medicine are taught in lectures illustrated by experiments. Inorganic chemistry is studied in the laboratory throughout the year. The class is divided into small sections, each of which must attend daily one or more recitation exercises in anatomy, histology, physiology and chemistry. These follow as closely as possible the practical work.

Students who have had the advantage of a thorough preliminary education in physics and chemistry before entering the medical school, after satisfactorily demonstrating to the professor in charge of this department, by examination or otherwise, that they are familiar with the work of the first year, may be excused from attendance upon these subjects. In their place they must elect at least one of the following courses given in the second year—namely, laboratory pharmacology, or physiological chemistry, or bacteriology.

During the second year anatomy, physiology, and chemistry are completed, and the study in text-books of medicine, surgery, obstetrics, and pathology is begun. The gross anatomy of the organs of special sense, and then that of the nervous system, is taught at the outset of the year by demonstrations to small groups of students. The demonstration of these organs is followed as closely as possible by the study of them in the histological laboratory during the first half of the session. The lectures and recitations in physiology follow the same course, and, in connection with the study of the gross and histological aspects of the parts under discussion, are more fully com-

prehended. Organic and physiological chemistry are studied in the laboratory and by lectures and recitations throughout the year. At the same time a laboratory course in pharmacology is pursued, familiarizing the student with the physical and chemical properties of drugs. Bacteriology is begun, the student commencing with the preparation and care of media and the recognition of the gross and microscopical characteristics of microorganisms.

During the first few weeks of the term lectures are delivered upon the general principles of pathology, with particular reference to the elucidation and classification of the various forms of inflammation. The substance of these lectures will form the basis of the subsequent instruction in this subject in all departments, and thus insure uniformity in the teaching and understanding of the causes of disease. These lectures are supplemented by autopsies before small sections to demonstrate gross lesions. Having obtained some knowledge of pathology, the student by means of recitations is made familiar with the principles of surgery, medicine, and obstetrics.

Students who have completed elsewhere courses in physiological chemistry or pharmacology equivalent to those of the second year, may by passing examinations at the beginning of the term be excused from further attendance upon them.

Students thus excused from part of the second-year work and those who have been allowed electives in their first year may take one or more of the following elective courses during their second year—namely: 1. Bacteriology in its practical relation to disease. 2. Materia medica recitation of the third year. 3. Manikin course in obstetrics. 4. Obstetrical clinic. The two latter elective courses are in preparation for the required work in practical obstetrics, which, usually taken in the third, can thus be taken during the second summer if desired. Students are allowed to take the State Board licensing examinations in the primary subjects at the end of the second year. Those intending to reside in this State are encouraged to avail themselves of this opportunity.

In the third year medicine, surgery, materia medica, therapeutics and obstetrics are studied systematically from text-books, and practically at the bedside, in the dispensary, and in general clinics. A sufficient number of didactic lectures are given by the Professors of Medicine and Surgery at the beginning of the session to explain general principles in symptomology and diagnosis. Throughout the year the class must attend in small sections one or more daily recitations from standard text-books upon the subjects previously assigned and learned. Pathology is studied in greater detail than previously,

both in the laboratory and the dead house, and as far as possible, morbid processes are demonstrated in advance of the study of the disease in the text-book or its clinical presentation.

In conjunction with the bedside teaching, instruction is given in all of the modern laboratory aids in diagnosis classified under the term of clinical pathology.

Students in groups of ten or twelve are taught the methods of examining patients for the detection of abnormal physical signs, and at the close of the session are expected to be familiar with the recognition and treatment of the common diseases and be conversant with the fundamental subjects of a medical education. The specialties taken up in this year are neurology, pediatrics, toxicology, genito-urinary diseases and gynæcology. They are taught by clinical lectures as part of the general subjects of the practice of medicine, surgery and obstetrics.

To meet the requirements of hospital and other boards of examinations, such as those of the civil service or the army and navy, students who wish to compete in these examinations may elect in their third and fourth years to have all the recitation exercises with special instructors appointed by the faculty. A separate fee is required for this service.

The fourth year is devoted chiefly to the study of diagnosis and treatment of disease at the bedside, in the dispensary and in clinics. The extent of this may be inferred from the present arrangement of the schedule, which contemplates about fifty hours of hospital-ward work in medicine, and nearly the same number in surgery for every student. There are as few lectures as are consistent with the proper exposition of the chief problems confronting the profession, and these are delivered at the outset of the term in order that the student may become familiar as soon as possible with the facts which are to be taught practically. For example, to the professor of medicine twelve didactic lectures are assigned. This proportion has to be exceeded somewhat in therapeutics, obstetrics and the specialties, but many of these lectures are illustrated by the presentation of typical cases and are really clinica. The clinical instruction in surgery is supplemented by an operative course in which the student performs upon the cadaver all the common operations. Particular attention is also given to the methods of making medical and surgical diagnoses, and in this connection constant use is made of the bacteriological and chemical laboratories, where the student examines specimens taken at the bedside during one exercise and reports the results to the class at the next.

Hygiene and its application in the province of the physician and public health officer is taught by lectures supplemented by demonstration of the plans and methods of the city health board.

The major part of the theoretical instruction, as in the previous years, is given by recitations in the subjects of medicine (including neurology), surgery (including orthopaedic surgery and genito urinary diseases), therapeutics, obstetrics, gynaecology and pathology.

The instruction in the specialties, which is made the distinguishing feature of this final year, is begun with a few clinical lectures and is continued by a course in the examination and treatment of dispensary patients by each student. Every one receives from fourteen to twenty-one hours of this training (the number varies somewhat with the subject), and should become reasonably proficient in the use of instruments, the ability to make diagnoses and give relief. There is no attempt made to produce experts, but each one before graduation must know enough about the specialized branches of medicine to be competent general practitioners. The lectures upon the physiology of the organs of special sense delivered in the fall to the second-year class, must also be attended by the seniors. These lectures serve as an introductory review of facts necessary for a proper knowledge of the specialties and obviate unnecessary repetitions by the different professors.

Every student must personally attend a definite number of cases of labor, and for this purpose the maternity service connected with the college offers excellent opportunities. The faculty earnestly recommend that this work be accomplished in the summer preferably of the third year; by the proper choice of electives it is possible in the second summer, but this is not as desirable or profitable. If taken during the regular winter session much loss in other work would result. Those who for any proper reason cannot take this course as advised in the summer might, however, succeed in obtaining the necessary cases during the winter by selecting odd hours when not engaged in section work, and by arrangement with the office to receive telephone calls.

As in the previous year there are the same electives in recitations for those who wish particularly to fit themselves for hospital and other competitive examinations. There is also offered an advanced course in neurology in a hospital devoted largely to the care of this class of patients. There will in addition be elective practical courses in the dispensary as opportunity arises.

DETAILS OF THE PLAN OF INSTRUCTION.

Anatomy.

GEORGE WOOLSEY, M.D., Professor of Anatomy.
IRVING S. HAYNES, M.D., Professor of Practical Anatomy.
DR. WILLIAM F. STONE, Instructor and Demonstrator of Anatomy.
DR. FRANK S. FIELDER, Demonstrator of Anatomy.
DR. JOHN F. CONNORS, Demonstrator of Anatomy.
DR. WILLIAM A. DOWNES, Demonstrator of Anatomy.
DR. BURTON J. LEE, Demonstrator of Anatomy.
DR. JOSEPH S. WHEELWRIGHT, Assistant in Anatomy.
DR. JOHN J. NUTT, Assistant in Anatomy.

Anatomy is taught in the first and second years by lectures, recitations, section demonstrations and laboratory courses, and by dissection. The course in anatomy is arranged to correspond as far as possible with the courses in physiology and histology.

Lectures in the first year are confined to the practical applied anatomy of the bones and joints, and follow the recitations on these subjects. In the second year the lectures are devoted to regional surgical anatomy, the students being already well grounded in descriptive anatomy.

One lecture a week is given during the first half of the second year by the Professor of Practical Anatomy on the development and gross anatomy of the nervous system, and the topographical anatomy of one of the extremities.

Descriptive Anatomy is taught by recitations, section demonstrations and laboratory courses and by dissection.

Recitations, from standard text-books, are held by the Instructor in Anatomy twice a week for each section of the first-year class and once a week for each section of the second-year class. During the first year the recitations are upon the bones, joints, muscles, arteries, veins, and a preliminary study of the central nervous system; during the second year upon the nervous system and the viscera.

PRACTICAL ANATOMY.

Section Demonstrations are now conducted as laboratory courses in which a given region is not only demonstrated, but each member of the group is required to identify the structures on the part, specimen or model. They are conducted by the Professor and Demonstrators of Practical Anatomy twice a week for each section during the first half of the first year and the last half of the second year, and once a week during the rest of the first and second years.

During the first three months of the first year the students are taught by section demonstrations on that part of the cadaver they are next to dissect; how to dissect, what to find, and where to find it. In addition, one preliminary demonstration is given weekly from October to January on the thoracic, abdominal, and pelvic viscera, to prepare students for the courses in physiology and histology by demonstrating the organs whose function and structure they are to study. In the last half of the first year the joints are studied. In the second year the brain and nervous system, the organs of sense, the thoracic and abdominal viscera, and the perineum are studied.

Dissection.—The course in dissection is arranged on a laboratory basis—that is, the students are required to dissect during certain specified hours each day while the demonstrators are in attendance. Twelve hours a week are assigned in the schedule for this anatomical laboratory course during the first and second year, and dissection is permitted at any time after 10 A.M. that the students are at leisure.

Two courses of dissection are required. The first course for first-year students comprises the dissection of three parts—the head and neck, and upper and lower extremities, including the joints. This course is begun after the recitations and section demonstrations have prepared each student for the part assigned to him.

The second course consists of the dissection of four parts and is designed for second-year students and those first-year students who have completed the first course. This course includes a review of the first course, with more particular attention paid to the minuter parts and, in addition, the dissection of the brain, the trunk, with the thoracic and abdominal viscera, and the perineum. A considerable part of the second course may be finished during the first year. This will afford time in the second year for additional and advanced work after completing the required parts. Students are examined and marked on the dissection of each part required. Prepared bones are loaned to students during the session from a large collection kept for this purpose.

Examinations.—A practical, in addition to a written, examination is held by the Professor of Anatomy at the end of the second year. At the end of the first year there is a written review or examination on the work of the year.

Advanced, Special, and Post-Graduate Courses.—Facilities are offered to students and the medical profession for pursuing advanced, special, and post-graduate courses in practical anatomy.



SUMMARY.*

	<i>First Year.</i>	<i>Second Year.</i>
Lectures	30 hours.	90 hours.
Demonstrations	45 hours.	45 hours.
Recitations	60 hours.	30 hours.
Dissection	288 hours.	200 hours.

EMBRYOLOGY.

Lectures	15 hours.
Laboratory	30 hours.

Text Book. Gerrish, second edition.

Collateral Reading—Cunningham; Morris; Gray; Quain; Toldt's *Atlas of Human Anatomy*; Woolsey, *Applied Surgical Anatomy*; Deaver's *Surgical Anatomy*; Haynes, *Guide to Dissection and Manual of Anatomy*.

Physiology.

AUSTIN FLINT, M.D., LL.D., Professor of Physiology.

DR. JOHN A. HARTWELL, Assistant Professor and Instructor.

MR. ALVIN W. BAIRD, Assistant.

DR. JOSEPH S. WHEELWRIGHT, Assistant.

Instruction in this branch is given by systematic lectures and recitations, with practical demonstrations and exercises, to first-year students during the second half of the session, and to second-year students during the first half of the session. During the second half of the session, review recitations, covering the entire first-year and second-year courses, are held once a week for the second-year class by the instructor, as a preparation for the final college and the State examinations.

As a preparation for the study of physiology proper, first-year students, during the first half of the session, receive instruction in the gross anatomy of the thoracic and abdominal viscera, by section demonstrations in the department of Practical Anatomy. The histology of the heart and blood-vessels, respiratory organs, alimentary canal and glandular organs is taught in the laboratory and by recitations.

The regular second-year work in physiology is given during the first-half of the session. Second-year students receive laboratory instruction in physiological chemistry in the department of Chemistry, Physics, and Toxicology. The same department gives in-

* This and the following summaries represent the total number of hours for each student.

struction in optics and acoustics to first-year students, which serves as a preparation for the study of vision and audition in the second year. Second-year students receive laboratory instruction from the department of Histology in the histology of the nervous system and the organs of special sense. They also receive instruction from the department of Anatomy in the anatomy of the encephalon and cranial nerves, and from the department of Histology in the functional traits in the central nervous system.

Lectures.—The regular lectures for the first-year class begin about the middle of January, and are continued three times weekly until the close of the session, on the following subjects and in the order named: The cell, blood, circulation, respiration, digestion and absorption, secretion and excretion, general metabolism, and animal heat and force. The regular lectures for the second-year class begin at the opening of the session, and are continued three times weekly until about the middle of January, on the following subjects and in the order named: The special senses, the nervous system, and embryology. Five lectures on embryology, given in January by Professor Flint, are devoted to the development of the ovum up to and including the formation of the membranes. The first nine lectures of the course devoted to the special senses are given to the second-year class and the fourth-year class together. Fourth-year students are thus enabled to review the physiology of the special senses as a preparation for the study of ophthalmology and otology.

Throughout the entire course, while the subject of human physiology proper is fully covered, special attention is paid to its applications to the practice of medicine and surgery, much time being devoted to what may be called applied physiology.

Recitations, Section Work, etc.—Certain of the work in the histological laboratory is practically a part of the instruction in physiology. For first-year students, this includes laboratory work and recitations on the cell and karyokinesis, ciliary movements, blood, the histology of the simple tissues, heart, and vessels, respiratory system, digestive system, glandular organs, and the cellular mechanism of secretion. For second-year students the instruction includes a study, in the same manner, of the nervous system, organs of special sense, and the genito-urinary system. The instruction in physiological chemistry is given in the department of Chemistry to second-year students. It includes lectures upon physiological chemistry, laboratory work, and recitations on the carbohydrates and fats, proteids and albuminoids, food-

stuffs, and the digestive secretions, endosmosis and exosmosis, and the chemistry of blood, bile, urine, and the simple tissues.

A laboratory course of forty hours is given to the second year students on the subject of Embryology. This is under the supervision of the department of Pathology.

In addition to the work in histology and physiological chemistry and in close connection with the lectures on physiology proper, the Assistant gives, three hours weekly, recitations, with frequent demonstrations and practical exercises, to each class, divided into sections of convenient size, for first-year students during the second half of the session, and for second-year students during the first half of the session. One additional hour is devoted weekly to demonstrations to each entire class of the subjects considered in the regular lectures for each week.

In the section-teaching, many demonstrations, by means of specimens, models, and apparatus, will be given, which cannot with advantage be made before the entire class, such as blood-counting, the capillary circulation, blood-pressure, the use of the sphygmograph, the general physiology of nerve and muscle, etc.

In the course of the section-work, students who prove themselves capable may be permitted to aid in the preparation and giving of the demonstrations when this does not interfere with other exercises, this corps of student-assistants being changed from time to time so that the privilege may be extended to as many as possible.

SUMMARY.

	<i>First Year.</i>	<i>Second Year.</i>	<i>Fourth Year.</i>
Lectures	45 hours.	45 hours.	6 hours.
Demonstrations	15 hours.	30 hours.	
Recitations	45 hours.	60 hours.	

Text Book—Flint's *Physiology*, fifth edition. 1904.

Collateral Reading—Kirke's *Handbook of Physiology*, seventeenth English edition, 1903; Schaffer's *Text Book of Physiology*; Stewart; Foster.

ALLIED BRANCHES.

Physiological Chemistry (see department of Chemistry, Physics and Toxicology).

Embryology (see department of Pathology).

Chemistry, Physics, and Toxicology.

RUDOLPH A. WITTHAUS, M.D., Professor of Chemistry.

DR. IWIN SICKELS, Assistant Professor.

DR. LOUIS W. RIGGS, Instructor.

DR. CHARLES G. L. WOLF, Instructor.

R. H. MACUMBER, Assistant.

Lectures.—Students of the first year will receive three lectures each week on physics, the divisions of the subject being considered in the following order: General properties of matter and force, mechanics, hydrostatics, pneumatics, optics, electricity, heat, and acoustics. The lectures will be abundantly illustrated, and the relations of physics to surgery and medicine will be particularly considered.

During the second year, students will attend two lectures weekly. Organic chemistry will be considered in the earlier part of the term to an extent sufficient to impart a knowledge of the principles of combination of the carbon compounds and the properties and relationships of those which are of physiological, toxicological, or therapeutical interest. The lectures during the latter part of the second year will be upon physiological chemistry.

During the third year one lecture will be given weekly on toxicology for twenty weeks. In these lectures the medical and medico-legal bearings of the subjects will be chiefly considered.

Recitations.—Students of the first year will recite twice each week on the principles of chemistry and mineral chemistry. Those of the second year will recite once weekly on organic and physiological chemistry.

Laboratory Work.—Laboratory instruction will be given students of the first year four hours weekly during the entire session.

This course will consist of an experimental study of the commoner elements and compounds in illustration of the recitation course, and of training in the processes of qualitative analysis of inorganic substances, and mineral poisons.

Students of the second year will receive laboratory instruction two hours weekly until February 14th, and four hours weekly after that date in physiological and clinical chemistry and organic toxicology.

Each student is fully supplied with all apparatus and chemicals required, except urinometers, which are carefully corrected for the student that they may serve for future use.

These courses are conducted by the instructors under the direction of the Professor of Chemistry and Physics.

First-year students presenting satisfactory evidence of having performed equivalent work in chemistry and physics will be excused from first-year work in this department, and be given advanced laboratory work equivalent in hours to that omitted.

SUMMARY.

	<i>First Year.</i>	<i>Second Year.</i>	<i>Third Year.</i>
Recitations	60 hours.	60 hours.	
Laboratory	96 hours.	84 hours.	
Lectures	90 hours.	60 hours.	20 hours.

Text Book—Withaus, *Manual of Chemistry*.

Collateral Reading — Wolf, *Laboratory Handbook*; Ganot's *Physics*.

Materia Medica and Therapeutics.

HENRY P. LOOMIS, M.D., Professor of Materia Medica and Therapeutics.

DR. WARREN COLEMAN, Instructor.

DR. EDMUND P. SHELBY, Instructor.

DR. ROBERT ANTHONY HATCHER, Ph.G., Instructor in Pharmacology.

DR. WILLIAM J. JONES, Clinical Assistant.

Instruction is given in this department during the second, third, and fourth years by means of : 1. Lectures. 2. Clinical instruction. 3. Recitations. 4. Laboratory work.

Lectures.—These are given by the Professor twice a week to the third-year students and once a week to the fourth-year students. They are confined almost exclusively to therapeutics, as it is believed that materia medica can best be taught by recitations and by laboratory work.

The lectures to the third-year students will consider the therapeutic uses of the most important drugs from the standpoint of the drug itself, such as the methods of prescribing the drug and the conditions for which it is given ; only so much of the physiological action of the drug will receive attention as will explain its therapeutic value.

The lectures to the fourth-year students will be confined almost exclusively to a consideration of the systematic treatment of the different diseases. The plan of treatment will be given in detail, with definite instruction as to the drugs to be used and the preparations which are most reliable.

Lectures will be given on remedial agents other than drugs, such as massage, dietetics, climatology, mineral waters, and hydrotherapy.

Clinical Instruction.—A new departure in the teaching of therapeutics will be made by affording the students of the third and fourth years opportunity to observe the effects of the different remedies on the natural course of diseases. To accomplish this the classes will

be divided into small sections and taken by the professor into the wards of Bellevue Hospital. Actual practice is given in the employment and application of the various therapeutic agents used in medicine, such as the aspirator, leeches, cups, cautery, stomach tube and stupes. The hydropathic establishment connected with this hospital is one of the most complete in the country. Here to small sections will be demonstrated the various applications of water to the treatment of disease—such as baths, packs, douches, etc. A professional masseur will show the technique of massage and the Swedish movements. The treatment of the different diseased conditions observed will be systematically studied, and opportunities will be given to the members of the class to make personal examination of the patient and to watch the modification of disease produced by the remedies prescribed. The clinical work of the third and fourth years affords abundant opportunities for further training in practical therapeutics. A general medical clinic will be held by the professor once a week in the amphitheatre of Bellevue Hospital, at which special attention will be given to the treatment of diseases under consideration.

Recitations.—Students of the third year will recite to the instructor twice a week from a standard text-book. During the fourth year a recitation will be held once a week on therapeutics. The recitations will embrace a study of the action of all the more valuable remedial agents in connection with the description of the drugs themselves.

Each student will be thoroughly drilled in prescription-writing and in the doses of the more important drugs.

Examinations will be held at stated times during the session by the professor to enable him to judge of each student's progress.

Laboratory Work.—The laboratory of Materia Medica occupies two floors of the Loomis Laboratory building; it is provided with a complete assortment of crude drugs and with all the various preparations of the Materia Medica; also with appliances for instruction in the methods of manufacturing pharmaceutical preparations. The laboratory is equipped with instruments and appliances for special research in the physiological action of drugs. The large class room is supplied with sixty tables, equipped with gas, electric lights, water connections, and full apparatus, enabling each student to work separately under the supervision of the instructors.

The course of laboratory instruction is taken during the second year, and consists of six hours each week for half the year. The class is divided into small sections, which are under the personal supervision of the instructors. The method of teaching is distinctly

practical. Instruction includes numerous exercises involving the manipulation of crude drugs and preparations, the occasion being used to review their physical, chemical, and medical properties.

About half of the laboratory course will be devoted to demonstrations and operations by the students upon frogs and mammals. This instruction, termed pharmaco-dynamics, is recognized as essential for a correct understanding of therapeutics.

In addition to these exercises the student will have frequent opportunities for examining the extensive *materia medica* collection, the ability to recognize the more important specimens being obligatory.

Considerable attention will be paid to prescription writing, and test prescriptions are compounded by members of the class.

SUMMARY.

	<i>Second Year.</i>	<i>Third Year.</i>	<i>Fourth Year.</i>
Lectures		47 hours.	30 hours.
Recitations		60 hours.	30 hours.
Laboratory	90 hours.		
Clinics		30 hours.	30 hours.
Sections		5 hours.	5 hours.

Text Book—White and Wilcox, *Materia Medica and Therapeutics*

Collateral Reading—Coleman, *Syllabus of Materia Medica*, *American Text Book of Applied Therapeutics*; Thompson, *Practical Dietetics*; Sollman's *Pharmacology*.

Medicine.

W. GILMAN THOMPSON, M.D., Professor of Medicine.

ALEXANDER LAMBERT, M.D., Professor of Clinical Medicine.

WARREN COLEMAN, M.D., Professor of Clinical Medicine.

CHARLES E. NAMMACK, M.D., Professor of Clinical Medicine.

LEWIS E. CONNER, M.D., Professor of Clinical Medicine.

DR. C. N. BANCER CAMAC, Instructor and Assistant.

DR. MONTGOMERY SICARD, Instructor and Assistant.

DR. FREDERICK L. KEAYS, Instructor and Assistant.

DR. THOMAS WOOD HASTINGS, Instructor and Assistant.

DR. JOHN W. COE, Instructor and Assistant.

DR. WALTER L. NILES, Instructor and Assistant.

DR. THEODORE B. BARRINGER, Instructor and Assistant.

The Course of Medicine comprises a graded plan of study extending throughout three years. General didactic lectures upon the practice of medicine are wholly supplanted by bedside and dis-

pensary instruction and recitations. The course includes the following subdivisions :

Second Year :

Recitations from a text-book upon elementary medicine, with written reviews.

Third Year :

1. Recitations from an advanced text-book, with written reviews.
2. Physical diagnosis of the heart and lungs.
3. History-recording.
4. Bedside course in symptomatology.
5. Dispensary course in general medicine.
6. Clinical Pathology.
7. Twenty lectures on symptomatology.
8. Hospital medical clinics.

Fourth Year :

1. Advanced bedside study in symptomatology and diagnosis.
2. Demonstrations of patients by the student before the class in the out-patient clinic.
3. Physical diagnosis.
4. Hospital medical diagnosis clinics.
5. Medical conferences.
6. Ten lectures upon diatheses, toxæmias, etc.
7. Elective advanced work in clinical diagnosis (clinical pathology, history-recording, etc.).
8. Recitations in medicine.

The details of the methods of instruction in medicine for each year of the curriculum are as follows :

SECOND-YEAR STUDENTS.

Recitations.--Second-year students begin the study of medicine with systematic recitations each week from an elementary text-book, in which the subjects of nomenclature, etiology, morbid anatomy, and typical symptoms only are dwelt upon.

THIRD-YEAR STUDENTS.

Recitations.--Third-year students recite twice each week from an advanced text-book on the Practice of Medicine, special emphasis being given to symptomatology, complications, diagnosis, and treatment.

Written reviews are held at intervals to familiarize the student with examinations. All recitations are obligatory, and the recitation marks received form an important component of the final examination marks of the year.

Ward Work.—Systematic and obligatory ward work is begun in classes not exceeding fifteen students each, who accompany the Professors of Clinical Medicine on rounds through the hospital wards. Examples of all the common diseases are studied, and the student has opportunity to personally examine many cases of disease in different stages of development, and of following their daily progress. A special course in general medical diagnosis is given at the bedside, in which the student observes cases illustrating all the important physical examinations.

Dispensary Classes.—Students in small classes are instructed in general medical diagnosis by Dr. Barringer in the new Out Patient Department of Bellevue Hospital.

Clinical Laboratory Courses are conducted in immediate connection with the study of hospital and dispensary cases.

The laboratory is designed to meet the three requirements of :

(1) *Teaching*; (2) *Original Research*, and (3) *Diagnosis*.

(1) *Teaching*.—The third-year class is divided into small sections, so that each member receives the personal assistance of the demonstrator. At the conclusion of the course a written and practical examination is held, and the result of this, as well as the character of the work done by each student, is included in the general average mark received by him in medicine. When assigned to cases at the general medical clinic in fourth-year the student is required to report the result of his examination of the sputum, blood, urine, etc.

The apparatus employed may readily be transported to the bedside, the work being thus essentially practical, and the student *himself* uses it so that he may become familiar with its care and application.

The course comprises the thorough study of the sputum, blood, gastric contents, faeces, urine, exudates and transudates.

Each student is furnished typical specimens which he stains and studies at the demonstrations.

(2) *Original Research*. Facilities are offered to graduate and undergraduate special students for the undertaking and publication of original investigations.

(3) *Dispensary, Hospital, and Clinical Laboratory Examinations*. The laboratory is a working part of the Cornell Dispensary. The visiting staff of this Dispensary, as well as that of the adjacent hospital, use the laboratory extensively for completing the data of their cases. Students who have completed their third year, and whose standing is good, may, under the supervision of the instructors, employ their summer months in following this work in the laboratory.

Physical Diagnosis.—Physical diagnosis of the chest is taught in classes not exceeding a dozen students each. This course of 30 lessons for each class is very comprehensive, owing to the large number of patients in the class of heart and lung diseases at the College Dispensary and in the wards of Bellevue Hospital.

General Medical Clinics.—Students of the third year are required to attend a clinic in general medicine conducted by Professor Lambert (commencing in December), and also the clinic in medical diagnosis conducted by Professor Thompson, and the clinic in general therapeutics by Professor Loomis, as described for the fourth year. These clinics are held weekly in the amphitheatre of Bellevue Hospital.

Lectures.—A course of twenty lectures upon general symptomatology is given by the Professor of Medicine, which is designed as introductory to the systematic bedside teaching which he conducts upon hospital rounds.

FOURTH YEAR STUDENTS.

Bedside Instruction is given by the Professor of Medicine to sections not exceeding fifteen students, in the wards of the Presbyterian Hospital until January 1st, and in those of Bellevue Hospital thereafter, throughout the year. In these sections each student is assigned in turn to special cases for thorough study. Ward classes are also conducted by Dr. Conner at the Hudson Street Hospital, and by Drs. Lambert and Nammack in Bellevue Hospital.

Clinics.—Medical clinics are held weekly in the amphitheatre of Bellevue Hospital by the Professor of Medicine. At these clinics students read written histories of cases which they have previously studied in the hospital wards. They are required to demonstrate their findings upon the patient and are questioned before the entire class in regard to diagnosis, etc. These clinics are also utilized by the Professor of Medicine to exhibit cases of exceptional rarity or difficult diagnosis, and a few of them are conducted in coöperation with the Professor of Surgery in order to present to the students the value of conjoint medical and surgical points of view in appropriate cases. A second general medical clinic is held weekly in the Bellevue amphitheatre by the Professor of Therapeutics, at which the effects of treatment are made the prominent feature.

An out-patient clinic is also held weekly by the Professor of Medicine in the Dispensary of the College, at which students are given ample opportunity to examine patients, study minor ailments, as well as all the forms of disease in the ambulatory cases of a large

and varied clinical service. More than 5,000 cases were treated during the past year in this department alone of the dispensary.

Lectures.—A course of ten lectures is given by the Professor of Medicine upon such general topics as the diatheses, toxæmias, auto-intoxication, cachexias, etc. Three lectures are also given by Dr. Conner upon the Internal Secretions, and three lectures by Dr. Camac upon the Clinical Aspects of Immunity.

Medical Conferences.—Under Dr. Coleman's direction, students are assigned to special cases which they study in detail for several weeks, reviewing the literature of the subject, and which they then report in writing at a medical conference, at which their fellow-students are called upon to offer criticisms and general discussion.

An elective course in advanced clinical pathology and diagnosis is offered in the fourth year.

SUMMARY.

	Second Year.	Third Year.	Fourth Year.
Lectures		20 hours.	10 hours.
Recitations	30 hours.	60 hours.	30 hours.
Clinics		46 hours.	66 hours.
Sections		35 hours.	48 hours.

CLINICAL PATHOLOGY.

Laboratory	60 hours.
Recitations	6 hours.

Text-Books—Thompson's *Practical Medicine*; Musser, *Medical Diagnosis*; Tyson's *Physical Diagnosis*; Salinger and Kalteyer, *Medicine*.

Collateral Reading—American *System of Practical Medicine*, Loomis-Thompson.

Surgery.

LEWIS A. STIMSON, M.D., Professor of Surgery.

FREDERIC S. DENNIS, M.D., Professor of Clinical Surgery.

GEORGE WOOLSEY, M.D., Professor of Clinical Surgery.

FREDERICK KAMMERER, M.D., Professor of Clinical Surgery.

FREDERICK GWYER, M.D., Professor of Clinical Surgery.

FRANCIS W. MURRAY, M.D., Professor of Clinical Surgery.

PERCIVAL R. BOLTON, M.D., Professor of Clinical Surgery.

ALEXANDER B. JOHNSON, M.D., Professor of Clinical Surgery.

DR. BENJAMIN TILTON, Instructor.

DR. JOHN ROGERS, JR., Instructor.

DR. CHARLES L. GIBSON, Instructor.

- DR. ARCHIBALD E. ISAACS, Instructor.
DR. JAMES MORLEY HITZROT, Instructor.
DR. GEORGE R. DODGE, Assistant.
DR. WILLIAM F. STONE, Assistant.
DR. WILLIAM A. DOWNES, Assistant.

Surgery will be taught in the recitation room, at the bedside, in the dispensaries, at hospital clinics, and by lectures.

In the second year the students are required to attend recitations on the principles of surgery two hours a week throughout the term. For this purpose the class is divided into small sections to insure thorough work; so far as time permits instruction will also be given at the bedside.

In the third year recitations are continued upon regional surgery; the class is instructed in sections in Bellevue Hospital in history-taking and methods of surgical examination and diagnosis, three hours a week for part of the term; and also two hours a week bedside instruction. Formal clinics are held in Bellevue, New York, and other hospitals; about thirty lectures will be given by the Professor of Surgery, and a clinic for diagnosis is held once a week throughout the term at which the students are required personally to examine and report upon the cases.

In the fourth year the students will receive clinical instruction in small groups in several hospitals and dispensaries upon general surgery and the special branches—eye, ear, nose and throat, genito-urinary diseases, dermatology and orthopædics; may attend the lectures and clinics, and will have a review quiz in preparation for examination.

The members of the sections are trained in the examination of patients, the dressing of wounds and fractures, the administration of ether and assisting at operations.

The opportunities for the instruction in the special branches are exceptionally ample. There will be several clinical teachers in each subject, each with hospital and dispensary services. The student will be enabled directly to examine and study cases, and will have a certain choice as to the time given to each branch.

In addition to the clinics at Bellevue and the New York hospitals specified above, Professor Gibson will give clinics at St. Luke's and the General Memorial hospitals at dates to be announced during the session.

Lectures on special topics are given in the college lecture courses in the second term, to which students of all classes are admitted.

Operative Surgery will be taught to small sections of the class

in the fourth year. The course consists of recitations, work upon the cadaver, and bandaging. As the material is abundant, each member of the class will perform the principal surgical operations.

Special instruction in operative surgery is offered to graduates in medicine. A circular giving particulars may be had on application to the Secretary.

SUMMARY.

	Second Year.	Third Year.	Fourth Year.
Lectures		30 hours.	30 hours.
Recitations	60 hours.	60 hours.	30 hours.
Clinics		86 hours.	86 hours.
Sections		25 hours.	35 hours.
Operative Surgery . . .			30 hours.

Text Book—Tillman.

Collateral Reading—American Text Book; Parks' Surgery; Stimson's Fractures and Dislocations; Stimson's Operative Surgery; Dennis, System of Surgery.

Obstetrics.

J. CLIFTON EDGAR, M.D., Professor of Obstetrics and Clinical Midwifery.

DR. RUSSELL BELLAMY, Instructor.

DR. GEORGE D. HAMLEN, Instructor.

DR. ALBERTUS A. MOORE, Instructor.

DR. I. L. HILL, Instructor.

DR. GUSTAVE SEELIGMANN, Instructor.

Instruction in obstetrics will be given during the second, third and fourth years by—

1. Recitations. 2. Illustrative lectures. 3. Obstetric clinics and conferences. 4. Attendance upon cases of confinement. 5. Manikin practice and section work. 6. Obstetric histology, pathology, and bacteriology.

1. Recitations from a standard text-book will be held by an instructor in obstetrics during the second year upon the physiology, and during the third upon the pathology, of obstetrics, the latter including obstetric surgery.

These recitations are so scheduled as to cover the entire field of the subject laid out for the college year, are supplementary to the work of the Professor of Obstetrics during each of these two years, and prepare the student for an intelligent appreciation of his subsequent illustrative lectures, obstetric conferences, attendance upon cases of confinement, clinics, and manikin practice.

2. **The Illustrative Lectures** comprise a systematic course running through the third year, upon the physiology and pathology of obstetrics.

These lectures are theoretical to a limited extent only, being mainly demonstrative and illustrative in character. To this end ample blackboard space is used, as well as an abundant collection of pelvis, entire, normal and deformed, mesial sections of the same, and in addition a supply of diagrams, charts, carefully selected plaster, composition, and metal models, wet and dry preparations, and instruments.

In conjunction with these lectures additional recitations are held by the Professor of Obstetrics upon the subject-matter of the college year and for final review.

3. **Obstetric Clinics and Conferences.**—A weekly obstetric clinic is held a portion of the year for both the third and fourth-year classes. At this clinic abnormal cases of pregnancy, labor, and the puerperium are demonstrated, and the major and minor obstetric operations performed.

In addition, infant feeding and the care of mother and child during the lying-in period and early infancy are taught. During both the third and the fourth year, members of the class will be called upon in rotation to examine patients and discuss etiology, diagnosis, prognosis, and treatment. These "obstetric conferences" will review the illustrative lectures, manikin work, and the student's work in his attendance upon confinement cases. By this means each individual student's standing in the department of obstetrics is ascertained. During the latter half of the second year six obstetric clinics are given at the hospital. Attendance upon these clinics is optional.

4. **Attendance upon Cases of Confinement.**—Each candidate for the degree of M.D. is required to present satisfactory evidence to the effect that he has attended a definite number of cases of confinement.

During the student's attendance upon his practical maternity course he may be excused from the exercises of the College during the fourth college year, otherwise he shall take his practical obstetric course during vacation time. Students will attend confinement cases under the supervision of the clinical instructors, and may obtain further information concerning their practical obstetric work by applying at the Secretary's office.

5. **Manikin Practice and Section Work.**—Manikin practice is given to sections of the class during the fourth or senior year, and consists of work by individual students upon the manikins, under the supervision and criticism of an instructor.

The mechanical phenomena of labor ; modes of delivery ; abnormal presentations and positions, with methods of delivery of each ; version ; application of the forceps, and other manipulations, will be demonstrated by the instructor and performed by the student.

Diagrams, models, casts, wet and dry specimens, will be used in the demonstrations.

The sections will also be instructed at the bedside in the management of pregnant and parturient women, the care of the new-born child, abdominal palpitation, and pelvic mensuration.

6. *Obstetric Histology, Pathology, and Bacteriology.*—Laboratory instruction is given during the third year by the Professor of Pathology upon the histology of the vulva, vagina, uterus, ligaments, Fallopian tubes, and ovaries in the pregnant and non-pregnant conditions, and upon the histology and pathology of the decidua, chorion, placenta, and umbilical cord.

SUMMARY.

	<i>Second Year.</i>	<i>Third Year.</i>	<i>Fourth Year.</i>
Lectures		25 hours.	25 hours.
Recitations	30 hours.	30 hours.	
Clinics		30 hours.	30 hours.
Sections		15 hours.	

Text-Book—Edgar's *Practice of Obstetrics*.

Gynaecology.

WILLIAM M. POLK, M.D., Professor of Obstetrics and Gynaecology.

DR. GEORGE D. HAMLEN, Instructor.

DR. GEORGE G. WARD, JR., Instructor.

DR. CHARLES C. BARROWS, Instructor.

DR. JOHN ASPELL, Instructor.

Instruction in gynaecology is given by recitations, lectures, ward and class-room demonstrations, clinics, and laboratory demonstrations.

Four Lectures, upon topics of special interest and importance to the subject as a whole, will be given during the fourth year.

Recitations are planned to cover the entire subject, and are held one hour a week during the fourth year of the course. In order that the instruction throughout the department may be as nearly in unison as possible, a synopsis of the subject-matter of each lesson is prepared by the instructor and amended and revised by the head of the department. This is presented to the student for comparison with his text-book, to which it is an addendum. This method insures the co-operation of the head of the department in the groundwork of his subject and enables him to keep in touch with each student until his graduation.

Glass-room and Ward Demonstrations are given to sections of the fourth-year class twice a week throughout the year. This instruction includes the examination of patients by the students, who are thereby drilled in the methods of physical diagnosis as applied to the pelvis. When necessary the patients are anaesthetized.

The routine of treatment appropriate to the various conditions found is demonstrated, the students assisting when possible. In this way, not only is familiarity acquired with normal conditions within the pelvis and the various departures from this state induced by disease, but opportunity is afforded to see and put in actual practice measures of relief and to watch the subsequent course and treatment of these cases.

Operations are performed three days every week at which the several sections are enabled to study the detail of every operation peculiar to this department.

A **General Clinic** is held once a week at which students selected in rotation are required to examine the patient, make a diagnosis, and suggest treatment. They are questioned before the class upon all these topics, as they relate to the case in hand, so as to determine the correctness of their conclusions. Should operation be called for, it is then performed.

Laboratory Demonstrations of secretions, discharges, and specimens obtained from patients who come under observation during this course are made to sections of the third-year class as a part of the course in clinical pathology.

SUMMARY.

	<i>Third Year.</i>	<i>Fourth Year.</i>
Lectures	6 hours.	6 hours.
Recitations		30 hours.
Clinics	30 hours.	30 hours.
Sections		20 hours.

Text-Book—Penrose's *Gynaecology*.

Collateral Reading—Dudley's *Gynaecology*; Garrigue's *Diseases of Women*.

Department of Pathology.

[INCLUDING HISTOLOGY, GROSS AND MICROSCOPICAL PATHOLOGY,
AND BACTERIOLOGY.]

JAMES EWING, M.D., Professor of Pathology.

DR. BERTRAM H. BUXTON, Professor of Experimental Pathology.

DR. JEREMIAH S. FERGUSON, Instructor in Histology.

DR. OTTO H. SCHULTZE, Instructor in Gross Pathology.

DR. MAX G. SCHLAPP, Instructor in the Histology and Pathology of the Nervous System.

DR. LETCHWORTH SMITH, Instructor in Bacteriology.

DR. JAMES C. JOHNSTON, Instructor in Pathology.

DR. WILLIAM J. ELSER, Instructor in Pathology.

DR. ISRAEL STRAUSS, Instructor in Embryology.

DR. HENRY T. LEE, Assistant in Pathology.

DR. GUY D. LOMBARD, Assistant in Histology.

DR. J. C. ROPER, Assistant in Histology.

DR. JOHN C. TORREY, Assistant in Histology and Bacteriology.

DR. GEORGE PATTEN BIGGS, Demonstrator of Gross Pathology.

DR. LEOPOLD JACHES, Assistant in the Histology and Pathology of the Nervous System.

DR. VICTOR C. VAUGHAN, Jr., Fellow in Experimental Pathology.

Histology.

The work in this subject is conducted throughout the first and during a portion of the second year by laboratory exercises and by recitations. Laboratory exercises, in two two-hour sessions weekly during the first year, and one two-hour session weekly during the second year, occupy in all about 150 hours for each student. The work covers the construction and use of the microscope, the methods of preparing microscopical sections of tissues, and the normal histology of the various tissues and organs of the human body. Attention is constantly directed to the application of the knowledge to physiology, and to further this end the courses in physiology and histology proceed as far as possible in unison. When desirable the structure of human tissues and organs is illustrated by sections of embryonal and lower vertebrate tissues.

In the first year the blood and simple tissues, the gastro-intestinal tract and adnexa, and the respiratory, circulatory, and genito-urinary organs are studied. In the second year the organs of the special senses and the nervous system are considered.

Recitations.—One recitation weekly for each student is held during the first year, and the first half of the second year, on subjects assigned from the text-book on histology. These recitations are designed to completely familiarize the student with the structure of the tissues considered during the previous week in the laboratory exercises.

An examination is held at the end of each year. The standing of the student in this, as in the other subjects, is determined equally from the work in the laboratory exercises and in the recitations.

Embryology.

In the latter half of the second year, a series of topics in embryology, which have special importance in medicine and pathology, are presented in a laboratory course, occupying about 40 hours for each student. These topics embrace the fertilization and maturation of the ovum, formation of germ layers, and the main facts regarding the development of the different systems and viscera. These topics are illustrated by microscopical sections, charts, lantern slides, and models.

Pathology.

The course of instruction in pathology in the second year comprises a preliminary course of lectures on the theory and classification of inflammations, which is designed to acquaint the student with the main facts in this field, to prepare him for preliminary studies in medicine and surgery, and to establish a uniform system of nomenclature to be used in this and other departments. During one half the second year, also, attendance is required at one weekly demonstration in gross pathology, at which the more common visceral lesions are exhibited. This course is designed to accompany the preliminary recitations in medicine and surgery of the second year.

The main branches of the subject are grouped in the third year in order to secure the simultaneous study of the gross and microscopical changes in diseased tissues. In the fourth year the students perform autopsies, and attend one recitation weekly in review of the entire subject.

Microscopical Demonstrations in Pathology.—The microscopical demonstrations occupy three two-hour sessions weekly throughout the year, in all about 175 hours. The specimens studied illustrate the topics of inflammation, tumors, auto-intoxications, infectious diseases, and diseases of the nervous system and are supplemented by lectures, and special demonstrations by means of sections, charts, lantern slides, and micro-photographs.

Demonstrations in Gross Pathology.—On the days alternating with the microscopical studies demonstrations of gross pathological specimens are given to the students of the third year, with the material collected from autopsies. With the viscera of each case is presented an epitome of the clinical history, and, when necessary, frozen sections of the organs, and the clinical symptoms are explained from the gross and microscopical changes in the altered tissues. The student here sees the viscera of many of the fatal cases which he has studied in the wards of the hospital.

Gross pathological diagnosis is taught as a separate branch of this subject, not bearing directly on the clinical aspect of the case.

These demonstrations occupy three two-hour sessions weekly, each section of the class attending one exercise weekly throughout the year.

Post-Mortem Examinations.—Students of the fourth year are required to perform autopsies under the direction of the instructor in gross pathology, when they are made familiar with the technical procedures required in ordinary and in medico-legal cases.

Recitations.—One recitation weekly is required of each student throughout the third and fourth years. In the third year they cover the work of each preceding week. In the fourth year they cover the entire work of the department.

Experimental Pathology.—During the past year definite plans have been formed to facilitate experimental studies in the Department of Pathology. The direct object of the plans is to associate together a number of competent workers whose time shall be entirely devoted to the study of new problems in medical science.

Abundant space and modern facilities have been provided for experimental work in cellular pathology, bacteriology, and physiological chemistry, and are available to approved applicants who desire to engage in this work, under the immediate direction of Professor Buxton. Dr. Vaughan has been appointed a member of this staff, and further appointments in the several branches involved will be made according to the requirements of the work undertaken.

It is the ultimate object of the present plans to increase the number of these workers and enlarge their facilities until they shall form a fully equipped institution of experimental medicine.

Bacteriology.

The laboratory course in bacteriology occupies three two-hour sessions each week for one-half of the second year—in all, ninety hours for each student. The student is first made familiar with the methods of disinfection, and is required to prepare the ordinary culture media. The work then proceeds to the methods of staining and examining bacteria; their artificial cultivation and the study of biological characters; the methods employed in the separation of species; the general relation of pathogenic bacteria to disease; and concludes with the biological analysis of air, water, soil, and milk. Cultures are made from the viscera of cases of the various infectious diseases, and the student is required to cultivate and identify the important pathogenic micro-organisms. The work is supplemented

when necessary by the use of pure cultures, by the exhibition of anaerobic cultures, and to a limited extent by inoculation in animals.

An Advanced Course in bacteriology is offered to those students who have been able in the first year to attend the course required in the second year.

This course includes the cultivation of other pathogenic micro-organisms, the separation of species, and the bacteriological examination of viscera secured at autopsies.

Advanced Courses and Original Research.—The abundant facilities of the laboratory on the fourth floor of the new building can be offered to properly qualified students and practitioners of medicine who wish to pursue advanced courses of study on lines of original research, under the direction of special instructors.

SUMMARY.

	First Yr.	Second Yr.	Third Yr.	Fourth Yr.
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Histology:

Recitations	60 hours.	30 hours.		
Laboratory	120 hours.	60 hours.		

Pathology:

Lectures	10 hours.		
Laboratory		180 hours.	
Recitations		30 hours.	30 hours.

Gross Pathology:

Laboratory	15 hours.	60 hours.	30 hours.
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Bacteriology:

Laboratory	90 hours.		
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Text-Books—Histology—Stohr, *Text-Book of Histology*.

Pathology—Delafield and Prudden, *Pathological Anatomy and Histology*.

Bacteriology—Sternberg, *Manual of Bacteriology*.

Clinical Diagnosis—V. Jaksch, *Clinical Diagnosis*.

Collateral Reading—Bohm, Davidoff and Huber, *Text-book of Histology*; Orth, *Pathological Diagnosis*; Ziegler, *General Pathology*; Muir and Ritchie, *Manual of Bacteriology*; Ewing, *Pathology of the Blood*.

SPECIAL DEPARTMENTS OF MEDICINE AND SURGERY.

Diseases of Children.

JOSEPH E. WINTERS, M.D., Professor of Diseases of Children.

DR. WALTER A. DUNCKEL, Instructor.

DR. WILLIAM SHANNON, Instructor.

DR. ROBERT S. ADAMS, Assistant.
 DR. SAMUEL M. EVANS, Assistant.
 DR. ELISHA M. SILL, Assistant.
 DR. HORACE S. STOKES, Assistant.
 DR. JOHN H. P. HODGSON Assistant.
 DR. LESTER M. HUBBY, Assistant.

This department will embrace clinical instruction and section teaching in all the important diseases of infancy and childhood.

There will be one clinical lecture each week in the college building, and clinical lectures in the Willard Parker Hospital on scarlet fever and diphteria.

In connection with the dispensary of the Children's Department in the college building there is an amphitheatre for section teaching, and isolation rooms for contagious diseases, so that students have ample opportunity for the personal study of disease.

Two hours each week will be devoted to section teaching in the dispensary to the students of the fourth year.

Students will be required to examine sick children and discuss the diagnosis and treatment of patients assigned to them.

Special attention is given to the hygiene and feeding of infants; the digestive disorders of infants; the dietetics of childhood and the food disorders of infancy and childhood; the anatomical and physiological peculiarities of infancy and childhood; and the influence these peculiarities have on the manifestations of disease in children.

One of the distinguishing features of this department will be the instruction of each student in the art of diagnosis, by the professor in charge.

There will be practical bedside illustrations of the management, care, and therapeutics of all the acute diseases of infancy and childhood.

In the clinical laboratory microscopical examinations will be made of secretions and excretions, of lesions of the mouth and throat, and of sections of anatomical lesions of the important diseases of childhood.

SUMMARY.

	<i>Third Year.</i>	<i>Fourth Year.</i>
Clinics	30 hours.	30 hours.
Sections		10 hours.

Text-Book—Williams, *Medical Diseases of Infancy and Childhood*.
Collateral Reading—Starr, *American Text-Book of the Diseases of Children*.

Surgical Diseases of the Genito-Urinary Organs.

SAMUEL ALEXANDER, M.D., Professor of Genito-Urinary Surgery.

DR. FRANCIS C. EDGERTON, Instructor.

The course is required of students during the third and fourth years, and is designed to give instruction in diagnosis and treatment of the surgical diseases of the male genital and urinary organs and in syphilis. It consists in recitations, lectures, clinics, and section work in the dispensary of the college and in the wards of Bellevue Hospital.

Recitations.—Recitations are held during the third and fourth years by the instructors in the department of general surgery.

Lectures.—One lecture a week from the opening of the term to the first of December will be given by Professor Alexander at the college. These lectures will be principally devoted to the subject of syphilis. A syllabus of these lectures will be furnished to each member of the class.

Clinic.—A clinic will be given in the amphitheatre of Bellevue Hospital once each week after the first of January by Professor Alexander. At this clinic the principal operations upon the male urinary and genital organs will be performed before the class, and special attention will be given to the subject of diagnosis and post-operative management of cases. Attendance upon these clinics is required by students during the third and fourth years.

Section Teaching at the College Dispensary and at Bellevue Hospital.—The third-year class will be divided into sections of small size, and instruction will be given by the Chief of Clinic and the instructors in the college dispensary. Special attention will be given in this course to the diagnosis and treatment of the venereal diseases and the use of special instruments.

The fourth-year class will be divided into sections of small size, and instruction will be given in the wards of Bellevue Hospital or in the college dispensary by Professor Alexander or the Chief of Clinic. This course will be devoted principally to the diseases of the urinary organs and to instruction in the use of special instruments and apparatus and the post-operative treatment of cases.

SUMMARY.

	<i>Third Year.</i>	<i>Fourth Year.</i>
Clinics	18 hours.	18 hours.
Sections	15 hours.	10 hours.
Lectures		6 hours.

Text-Book—White and Martin.

Collateral Reading—Hyde and Montgomery, Keyes and Chetwood.

Nervous Diseases.

CHARLES L. DANA, M.D., Professor of Diseases of the Nervous System.

DR. JOSEPH FRAENKEL, Instructor.

DR. J. RAMSAY HUNT, Instructor.

DR. ROBERT M. DALEY, Assistant.

DR. LESLIE J. MEACHAM, Instructor.

The regular work consists of a preliminary series of lectures by Professor Dana, in which the general outline of the work for the year is given, with demonstrations of the general anatomy, general symptomatology, and methods of examination of the nervous system. During the rest of the term clinical lectures on nervous diseases are held weekly in the amphitheatre of Bellevue Hospital or at the college. Section work is given weekly to classes in the wards of Bellevue Hospital, and three times a week in the dispensary of the college. In this dispensary, section-work instruction is given in history-taking in the examination of patients, and in electro-therapeutics.

It is considered of the greatest importance that the student of nervous diseases be thoroughly grounded in the anatomy and physiology of the nervous system, therefore courses in gross and microscopical anatomy of the nervous system are provided in the histological laboratory. Special students can also take courses on the pathology of the nervous system.

Thus the course of instruction aims to provide the student before he graduates with instruction in the microscopical anatomy of the nervous system, in its physiology and pathology, and also with practical clinical instruction in the amphitheatre, at the bedside, and in the dispensary.

SUMMARY.

Third Year. Fourth Year.

Lectures	5 hours.	
Clinics	20 hours.	20 hours.
Sections	15 hours.	5 hours.

Text-Book—Dana, *Diseases of the Nervous System*.

Collateral Reading.—Gower's *Diseases of the Brain and Spinal Cord*; Dercum, Obersteiner, *Anatomy of the Nervous System*.

Mental Diseases.

ADOLF MEYER, M.D., Professor of Mental Diseases.

_____, Instructor.

A series of clinical lectures will be given once a week for two months, fully illustrated. Clinics will also be given at the Manhattan

State Hospital on Ward's Island and section teaching at Bellevue Hospital during the course.

Instruction will also be given in diagnosis, the legal commitment of the insane, and the relations of insanity to medical jurisprudence.

SUMMARY.

Fourth Year.

Lectures	5 hours.
Sections	4 hours.
Clinics	10 hours.

Text-Book—Regis-Berkley, *Mental Diseases*.

Collateral Reading—Tuke's *Dictionary of Psychological Medicine*.

Dermatology.

GEORGE T. ELLIOTT, M.D., Professor of Dermatology.

DR. JAMES C. JOHNSTON, Instructor.

DR. EDWARD PISKO, Instructor.

Instruction in Dermatology will be given by the Clinical Professor and his assistants. No teaching will be given didactically, but the cutaneous diseases will be demonstrated on the living subject. Abundance of material for such instruction is obtainable, and the student can thoroughly familiarize himself with the more common as well as with the rarer diseases of the skin by actual personal contact and observation. Attention is particularly paid to the diagnosis and the etiology of skin diseases, but their therapeutics also receive due consideration.

SUMMARY.

Fourth Year.

Sections	25 hours.
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Text-Books—J. Nevins Hyde, *Dermatology*; H. Stilwagon, *Diseases of the Skin*.

Collateral Reading—H. Radcliffe Crocker, third edition.

Laryngology and Rhinology.

CHARLES H. KNIGHT, M.D., Professor of Laryngology.

DR. JAMES E. NEWCOMB, Instructor.

DR. FRANK T. BURKE, Assistant.

DR. CHARLES MACK, Assistant.

DR. WALTER C. MONTGOMERY, Assistant.

DR. EDWARD J. CONNELL, Assistant.

DR. ALBERT C. BARDES, Assistant.

Instruction in Laryngology and Rhinology is given by clinical

lectures at the college by the professor of the department. The subjects then considered are demonstrated to the fourth-year students by the instructor and by the assistants. The class is divided into sections, and each member is expected to examine patients and perform manipulations. The clinics are fully illustrated by plates and models, and, as far as possible, by clinical material.

SUMMARY.

Fourth Year.

Lectures	14 hours.
Sections	15 hours.

Text-Book—Knight, *Diseases of the Nose and Throat*.

Collateral Reading—Grünwald, *Atlas of Diseases of the Larynx*; Grünwald, *Atlas of Diseases of the Mouth, Pharynx and Nose*.

Ophthalmology.

CHARLES STEDMAN BULL, M.D., Professor of Ophthalmology.

DR. ROBERT G. REESE, Instructor.

DR. ALEXANDER DUANE, Instructor.

Instruction in Ophthalmology consists in lectures at the college building once a week, during the months of October, November, and December, and in sectional teaching two hours a week at the college dispensary throughout the year. The weekly lectures at the college are didactic, and consider the subjects of the external or superficial diseases of the eye, the anomalies of the ocular muscles, and the deep lesions of the eye which are not susceptible of clinical demonstration. The sectional teaching at the college dispensary is devoted partly to clinical ophthalmology and the use of the ophthalmoscope, and partly to instruction in the errors of refraction and the rudiments of the fitting of lenses. Thus the entire field of ophthalmology is covered.

SUMMARY.

Fourth Year.

Clinics	10 hours.
Sections	20 hours.

Text-Book—Noyes.

Collateral Reading—De Schweinitz, Swanzy, Jackson, Nettleship.

Otology,

FREDERICK WHITING, M.D., Professor of Otology.

DR. GEORGE B. McAULIFFE, Instructor.

DR. WILLIAM S. BRYANT, Instructor.

DR. EARLE CONNER, Assistant.

DR. DONALD BARSTOW, Assistant.

DR. GEO. W. KUNZ, Assistant.

DR. H. E. COOK, Assistant.

During the first third of the fourth year a systematic course of weekly lectures is given. These lectures are practical in character, including a consideration of the anatomy and physiology of the ear and the various methods of examination. Patients are shown to the class in order to familiarize the students with the symptoms and character of the more important diseases.

For clinical instruction in the dispensary, the fourth-year class is divided into sections. Each student receives practical instruction from Professor Whiting and his assistants in the examination of patients, the use of the otoscope, and the various methods of testing the hearing. The student is permitted to examine patients and, after a probationary period, to prescribe for them and thus gradually assume the duties of a clinical assistant. The students also have an opportunity of witnessing the more important operations in aural surgery, including intracranial complications at the New York Eye and Ear Infirmary.

SUMMARY.

Fourth Year.

Clinics.....	9 hours.
Sections	15 hours.

Text-Book—Bacon on the Ear.

Collateral Reading—Politzer, Diseases of the Ear; Macewen, Pyogenic Infective Diseases of the Brain and Spinal Cord.

Orthopaedic Surgery.

NEWTON M. SHAFFER, M.D., Professor of Orthopaedic Surgery.

DR. P. HENRY FITZHUGH, Instructor.

DR. HENRY SCOTT, Assistant;

DR. DEAS MURPHY, Assistant.

DR. FANEUL S. WEISSE, Assistant.

DR. JOHN JOSEPH NUTT, Assistant.

The course of study in the Orthopaedic Department includes a stated clinical lecture once a week, with detailed demonstrations in sectional work twice a week during two months of the year.

During the regular clinical course especial attention is given to the early recognition of the deforming diseases of childhood, also to the symptomatology, pathology, and differential diagnosis of chronic and progressive deformities, including the mechanical and operative treatment.

In detail, the course consists of practical illustrations of methods of treatment, the apparatus used being thoroughly explained both in construction and in principle, attention being called

to even minute points of construction and use. The operative side is fully dwelt upon, the indications for operative interference as an adjunct to the mechanical work being demonstrated. Ample clinical material is provided, and models of conventional forms of apparatus are placed at the disposal of students.

In the section and laboratory work the student is required to assist in the management of selected cases, to familiarize himself with the various methods of treatment, to construct the simpler forms of apparatus, to secure a practical knowledge of the details of construction of the more complicated instruments, and to familiarize himself with the pathological conditions existing in the deformities of childhood.

SUMMARY.

Fourth Year.

Clinics	10 hours.
Sections	10 hours.

Text-Book—Bradford and Lovett.

Department of Hygiene.

— — — — —, M.D., Lecturer.

Instruction is given in this course to fourth-year students by lectures, demonstrations and conferences, to supplement a text-book, one hour a week for half of the year.

The course is designed to help physicians in a practical way in their efforts to cope with preventable disease.

The hygienic relations of foods, water, clothing, schools, dwellings, climate, and especially of youth and the transmissible diseases are studied from the viewpoint of the practical physician.

SUMMARY.

Fourth Year.

Lectures	15 hours.
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Text-Book—Egbert, *Hygiene and Sanitation*.

Collateral Reading—Notter, *Theory and Practice of Hygiene*.

SUMMARY OF THE PLAN OF INSTRUCTION.

The right is reserved to make amendments to this curriculum as experience may prove necessary.

The hours stated indicate the number of hours assigned to each student.

FIRST YEAR.

Anatomy.

Lectures, one hour weekly	30 hours.
Demonstrations, $1\frac{1}{2}$ hours weekly	45 hours.
Recitations, 2 hours weekly	60 hours.
Dissection, 12 hours weekly, 24 weeks	288 hours.

Physiology.

Lectures, 3 hours weekly, half term	45 hours.
Laboratory Demonstrations, 1 hour weekly, half term	15 hours.
Recitations, 3 hours weekly, half term	45 hours.

Chemistry.

Recitations, 2 hours weekly	60 hours.
Laboratory, 4 hours weekly, 18 weeks	72 hours.
Laboratory, 2 hours weekly, 12 weeks	24 hours.

Physics.

Lectures, 3 hours weekly	90 hours.
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Histology.

Laboratory, 4 hours weekly	120 hours.
Recitations, 2 hours weekly	60 hours.

Electives.

Laboratory Pharmacology.

Physiological Chemistry.

Bacteriology.

These elective courses are open to certain advanced students as described on page 218.

In the course of the session one written review is held in the subjects recited upon. The papers are examined by the professors of the respective branches.

SECOND YEAR.

Anatomy.

Lectures, 2½ hours weekly	75 hours.
Demonstration Lectures, 1 hour weekly, 15 weeks . .	15 hours.
Demonstrations, 1½ hours weekly, 30 weeks	45 hours.
Recitations, 1 hour weekly	30 hours.
Dissection, 10 hours weekly, 20 weeks	200 hours.
Lectures on Embryology	15 hours.
Laboratory Embryology, 2 hours weekly, 15 weeks . .	30 hours.

Physiology.

Lectures, 3 hours weekly, half term	45 hours.
Recitations, 4 hours weekly, half term	60 hours.
Laboratory Demonstrations, 1 hour weekly	30 hours.

Organic and Physiological Chemistry.

Laboratory, 2 hours weekly, 18 weeks	36 hours.
Laboratory, 4 hours weekly, 12 weeks	48 hours.
Lectures, 2 hours weekly	60 hours.
Recitations, 2 hours weekly	60 hours.

Pharmacology.

Laboratory, 6 hours weekly, 15 weeks	90 hours.
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Bacteriology.

Laboratory, 6 hours weekly, 15 weeks	90 hours.
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Histology.

Laboratory, 2 hours weekly	60 hours.
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Recitations, 1 hour weekly	30 hours.
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Pathology.

Lectures	10 hours.
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Gross Pathology, 1 hour weekly for 15 weeks	15 hours.
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Medicine.

Recitations, 1 hour weekly	30 hours.
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Surgery.

Recitations, 2 hours weekly	60 hours.
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Obstetrics.

Recitations, 1 hour weekly	30 hours.
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Electives.**Bacteriology.**

Materia Medica Recitations of the Third Year.

Manikin Course in Obstetrics.

Obstetrical Clinic.

The conditions under which certain students may avail themselves of these electives are stated on page 218.

THIRD YEAR.**Medicine.**

Lectures, 2 hours weekly, 10 weeks	20 hours.
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Clinics, 1 hour weekly	30 hours.
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Clinics, 1 hour weekly, 16 weeks	16 hours.
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Recitations, 2 hours weekly	60 hours.
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Section Work, 3 hours weekly, 10 weeks	30 hours.
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Section Work, 1 hour weekly, 5 weeks	5 hours.
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Surgery.

Lectures, 3 hours weekly, 10 weeks	30 hours.
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Clinics, 1 hour weekly, 18 weeks	18 hours.
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Clinics, 1 hour weekly	30 hours.
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Clinics, 1 hour weekly, 8 weeks	8 hours.
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Clinics, 1 hour weekly	30 hours.
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Recitations, 2 hours weekly	60 hours.
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Section Work, 3 hours weekly, 5 weeks	15 hours.
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Section Work, 2 hours weekly, 5 weeks	10 hours.
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Therapeutics.

Lectures, 1 hour weekly	30 hours.
Lectures, 1 hour weekly, 17 weeks	17 hours.
Clinics, 1 hour weekly	30 hours.
Section Work, 1 hour weekly, 5 weeks	5 hours.

Materia Medica.

Recitations, 2 hours weekly	60 hours.
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Pathology.

Laboratory, 6 hours weekly	180 hours.
Recitations, 1 hour weekly	30 hours.

Gross Pathology.

Laboratory, 2 hours weekly	60 hours.
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Clinical Pathology.

Laboratory, 2 hours weekly	60 hours.
Recitations, 1 hour weekly, 6 weeks	6 hours.

Obstetrics.

Lectures, 1 hour weekly, 25 weeks	25 hours.
Clinics, 1 hour weekly	30 hours.
Recitations, 1 hour weekly	30 hours.
Section Work (manikin), 3 hours weekly, 5 weeks	15 hours.

Gynaecology.

Lectures	6 hours.
Clinics, 1 hour weekly	30 hours.

Toxicology.

Lectures, 1 hour weekly, 20 weeks	20 hours.
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Diseases of Children.

Clinics, 1 hour weekly	30 hours.
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Genito-Urinary Surgery.

Clinics, 1 hour weekly, 18 weeks	18 hours.
Section Work, 3 hours weekly, 5 weeks	15 hours.

Neurology.

Lectures	5 hours.
Clinics, 1 hour weekly, 20 weeks	20 hours.
Section Work, 3 hours weekly, 5 weeks	15 hours.

FOURTH YEAR.**Medicine.**

Lectures, 1 hour weekly, 10 weeks	10 hours.
Clinics, 1 hour weekly	30 hours.
Clinics, 1 hour weekly	30 hours.
Clinics, 1 hour weekly, 6 weeks	6 hours.

Recitations, 1 hour weekly	30 hours.
Section Work, 2 hours weekly, 5 weeks	10 hours.
Section Work, 1 hour weekly, 5 weeks	5 hours.
Section Work, 2 hours weekly, 5 weeks	10 hours.
Section Work, 3 hours weekly, 5 weeks	15 hours.
Section Work, 2 hours weekly, 4 weeks	8 hours.

Surgery.

Lectures, 3 hours, 10 weeks	30 hours.
Clinics, 1 hour weekly, 18 weeks	18 hours.
Clinics, 1 hour weekly, 8 weeks	8 hours.
Clinics, 2 hours weekly	60 hours.
Section Work, 1 hour weekly, 5 weeks	5 hours.
Section Work, 4 hours weekly, 5 weeks	20 hours.
Section Work, 2 hours weekly, 5 weeks	10 hours.
Operative Surgery, 6 hours weekly, 5 weeks	30 hours.
Recitations, 1 hour weekly	30 hours.

Therapeutics.

Lectures, 1 hour weekly	30 hours.
Clinics, 1 hour weekly	30 hours.
Recitations, 1 hour weekly	30 hours.
Section Work, 1 hour weekly, 5 weeks	5 hours.

Obstetrics.

Lectures, 1 hour weekly, 25 weeks	25 hours.
Clinics, 1 hour weekly	30 hours.

Gynaecology.

Lectures, 1 hour weekly, 6 weeks	6 hours.
Clinics, 1 hour weekly	30 hours.
Section Work, 4 hours weekly, 5 weeks	20 hours.
Recitations, 1 hour weekly	30 hours.

Pathology.

Recitations, 1 hour weekly	30 hours.
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Gross Pathology.

Laboratory, 6 hours weekly, 5 weeks	30 hours.
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Diseases of Children.

Clinics, 1 hour weekly	30 hours.
Section Work, 2 hours weekly, 5 weeks	10 hours.

Genito-Urinary Surgery.

Lectures	6 hours.
Clinics, 1 hour weekly, 18 weeks	18 hours.
Section Work, 2 hours weekly, 5 weeks	10 hours.

Neurology.

Clinics, 1 hour weekly, 20 weeks	20 hours.
Section Work, 1 hour weekly, 5 weeks	5 hours.

Mental Diseases.

Lectures	5 hours.
Sections	4 hours.
Clinics	10 hours.

Dermatology.

Section Work, 5 hours weekly, 5 weeks	25 hours.
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Laryngology and Rhinology.

Lectures, 1 hour weekly, 14 weeks	14 hours.
Section Work, 3 hours weekly, 5 weeks	15 hours.

Ophthalmology.

Clinics, 1 hour weekly, 10 weeks	10 hours.
Section Work, 4 hours weekly, 5 weeks	20 hours.

Otology.

Clinics, 1 hour weekly, 9 weeks	9 hours.
Section Work, 3 hours weekly, 5 weeks	15 hours.

Physiology of the Special Senses.

Lectures, 3 hours weekly, 2 weeks	6 hours.
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Orthopaedic Surgery.

Clinics, 1 hour weekly, 10 weeks	10 hours.
Section Work, 2 hours weekly, 5 weeks	10 hours.

Hygiene.

Lecture, 1 hour weekly, half the term	15 hours.
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EXAMINATIONS.**Requirements for Advancement in Course.**

Students are advanced in course from one year to the next upon passing examinations in the work of that year, but examinations in major or minor subjects may, at the discretion of the Head of the Department include all the work previously covered in the year or years preceding the examinations in question. There is, however, no unnecessary repetition of subjects taught from year to year. Students who have not succeeded in passing all their examinations will be allowed to enter upon the next year's studies, provided they pass examinations in the subjects failed in at the beginning of the session.

Examinations for advancement in course, graduation, and admission to advanced standing are held at the close of the year. In each laboratory course extending through a part of the year only, the examination is held at the close of the course.

Examinations for conditioned students and those desiring admission to advanced standing, who have not taken the spring examinations, are held during the first fortnight of the fall term.

The subjects examined upon are divided into major and minor subjects, and a standing of 75 per cent. is required to pass.

The minor subjects embrace laboratory courses and those in which instruction is given by recitations only.

Subjects of Examination for Admission to the Second Year.

Major Subjects.—Anatomy (except the nervous system, viscera, and organs of special sense).

Physics.

Inorganic Chemistry.

Physiology (except the nervous system and organs of special sense).

Minor Subjects.—Histology (except the nervous system and organs of special sense).

Laboratory Inorganic Chemistry.

Conditions allowed (at the spring examinations): 1 Major and 1 Minor; or 2 Minors.

NOTE 1. In each of the laboratory courses of the first and subsequent years, students whose marks fall between 60 and 75 per cent. will be allowed one reëxamination within two weeks of the completion of the course, failing in which they must repeat the laboratory course with the next succeeding section.

Students whose marks fall below this percentage in the chemical laboratory cannot be reëxamined, but must repeat the course with the next succeeding section.

NOTE 2. In each of those branches in which recitations are held throughout the year, there shall be a written review conducted by the instructors and supervised by the professor in charge of the department, and also a final written review conducted by the professor himself at the close of the year. The written reviews conducted by the instructors shall be held as soon as possible after the return from the Christmas recess, and shall count as a single recitation, the object being to ascertain the knowledge acquired by the student.

NOTE 3. All conditions must be successfully passed before entrance into the next succeeding year will be allowed.

Subjects of Examination for Admission to the Third Year.

Major Subjects.—Anatomy.

Organic Chemistry.

Physiology.

Minor Subjects . . Medicine.

Surgery.

Obstetrics.

Bacteriology.

Normal Histology (central nervous system and organs of special sense).

Pharmacology.

Laboratory Organic Chemistry.

Conditions allowed : 1 Major and 1 Minor ; or 2 Minor subjects.

(See Notes 1, 2 and 3, page 278.)

Subjects of Examination for Admission to the Fourth Year.

Major Subjects . . Materia Medica.

Toxicology.

Pathology.

Minor Subjects . . Obstetrics and Gynaecology.

Medicine.

Surgery.

Clinical Pathology.

Pediatrics.

*Neurology. } Clinical Paper.

Gross Pathology.

Conditions allowed : 1 Major and 1 Minor ; or 2 Minor.

(See Notes 1, 2 and 3, page 278.)

Subjects of Examination for Graduation at the End of the Fourth Year.

Medicine.

Surgery.

Obstetrics and Gynaecology.

Therapeutics.

Hygiene.

Ophthalmology

Neurology.

Laryngology and Rhinology.

Orthopaedics

Pediatrics.

Mental Diseases.

Otology.

Dermatology.

Genito-Urinary Diseases.

} Clinical Paper.

} Clinical Paper.

} Clinical Paper.

Special Subjects :

Students conditioned in only one subject at the end of the fourth year will be given an opportunity to make up the condition within two weeks. If the second examination is satisfactory the degree may be conferred at the Commencement at Ithaca.

Those conditioned in more than one subject or who fail to pass in the second examination just mentioned must repeat the work of the fourth year.

Requirements for Graduation.

1. Candidates for the degree of doctor of medicine must have studied medicine for four full years in an accredited medical college, and the fourth year at least must have been spent in the Cornell University Medical College.

2. Candidates must present satisfactory evidence of good moral character and of being not less than twenty-one years of age.

3. Candidates must file with the Secretary of the Faculty the Cornell Regents' medical-student certificate as evidence of having complied with the requirements for admission.

4. Candidates must have dissected at least seven parts in anatomy (see p. 244). They must, further, have taken the regular course of two weeks in practical obstetrics.

5. In addition to the yearly examinations above specified for advancement in course, candidates must pass at the end of the fourth year examinations in medicine, surgery, therapeutics, obstetrics, and gynaecology, and the special branches as are specified on p. 279.

6. Candidates rejected at the final examination will not be re-examined until after having repeated their fourth year of study.

Before being readmitted to the fourth year the candidate must pass a satisfactory examination in anatomy, physiology, chemistry and physics, and *materia medica*.

7. The degree will not be conferred upon any candidate who absents himself from the public Commencement without the special permission of the Faculty.

8. The Faculty reserves the right to terminate the connection of any student with the institution *at any time* on the ground of what they may deem moral or mental unfitness for the profession, or improper conduct while connected with the College.

Final Examination in the Subjects of the First and Second Years.

A law passed at the last session of the legislature permits students to take part of their examinations for the license to practice medicine in this State at the end of the second year.

Requirements for License to Practice Medicine in the State of New York.

All requirements for admission should be filed at least one week before examination.—They are as follows :

1. Evidence that applicant is more than twenty-one years of age (Form 1).
2. Certificate of moral character from not less than two physicians in good standing (Form 1).
3. Evidence that applicant has the general education required preliminary to receiving the degree of bachelor or doctor of medicine in this State (medical-student certificate. See examination handbook).
4. Evidence that applicant has studied medicine not less than four full school years of at least nine months each, in four different calendar years, in a medical school registered as maintaining at the time a satisfactory standard. New York medical schools and New York medical students shall not be discriminated against by the registration of any medical school out of the State, whose minimum graduation standard is less than that fixed by statute for New York medical schools.

First exemption: "The Regents may in their discretion accept as the equivalent for any part of the third and fourth requirement, evidence of five or more years' practice of medicine, provided that such substitution be specified in the license.".

5. Evidence that applicant "has received the degree of bachelor or doctor of medicine from some registered medical school, or a diploma or license conferring full right to practice medicine in some foreign country" (Form 2 of original credentials).

6. The candidate must pass examinations in anatomy, physiology and hygiene, chemistry, surgery, obstetrics, pathology and diagnosis, therapeutics, practice, and *materia medica*. The questions "shall be the same for all candidates, except that in therapeutics, practice, and *materia medica* all the questions submitted to any candidate shall be chosen from those prepared by the board selected by that candidate, and shall be in harmony with the tenets of that school as determined by its State Board of Medical Examiners."

Second exemption: "Applicants examined and licensed by other State examining boards registered by the Regents as maintaining standards not lower than those provided by this article, and applicants who matriculated in a New York State medical school before June 5, 1890, and who received the degree of M.D. from a registered medical school before August 1, 1895, may, without further examina-

tion, on payment of \$10 to the Regents, and on submitting such evidence as they may require, receive from them an indorsement of their licenses or diplomas, conferring all rights and privileges of a Regents' license issued after examination."

7. A fee of \$25 payable in advance.

DIPLOMAS OF LICENTIATE OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON AND MEMBERSHIP OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Graduates of the Cornell University Medical College are admitted to the final examination for the diploma of Licentiate of the Royal College of Physicians of London and Membership of the Royal College of Surgeons of England, upon presenting proper certificates that certain conditions applicable to the foreign universities and colleges which are recognized by the examining board have been complied with.

Further information may be obtained from the Secretary of the Board (Mr. F. G. Hallett) at the Examination Hall, Victoria Embankment, London, W. C.

PRIZES.

The College offers three prizes. The first, \$150, is awarded the student having the highest record for the four years; the second, \$100, to the student having the mark next in order; the third, \$50, to the student standing third on the list of graduates.

Two prizes, one of \$50, and another of \$25, are offered by Professor Dana to the students of the graduating class, to be designated by him, who make the two best reports of neurological cases.

HOSPITAL APPOINTMENTS.

The students and graduates of the Cornell University Medical College are entitled to compete on equal terms with those of other colleges for positions on the resident staff of Bellevue and the other hospitals of the city.

Some of these hospitals are: The City, Harlem, Gouverneur, New York, St. Luke's, Presbyterian, St. Vincent's, St. Francis', Mount Sinai, German and Hudson Street hospitals, New York Eye and Ear Infirmary, and the hospitals in Brooklyn and Jersey City, Newark, Paterson, etc.

The requirements, the times of examination, and the period of service differ. The details can be learned by application, written or in person, to the superintendents or to the secretaries of the medical boards of the various hospitals.

Special Courses.

The Medical Department will continue during the summer of 1905 the System of Special Courses which has proved of advantage.

The courses are designed primarily for advanced students or for workers in specialized lines of research or for post-graduates. They are scheduled to begin early in May, and to continue about six weeks in order to terminate before the hottest weather. These courses include different portions of the subjects of normal histology : clinical, gross, and histological pathology ; bacteriology, chemistry, anatomy, and operative surgery.

A pamphlet giving full details can be obtained by application to the Secretary of the College.

FACULTY OF MEDICINE AT ITHACA.

BURT GREEN WILDER, B.S., M.D., Professor of Neurology, Vertebrate Zoology, and Physiology.

EDWARD LEAMINGTON NICHOLS, B.S., Ph.D., Professor of Physics.

SIMON HENRY GAGE, B.S., Professor of Histology and Embryology.

VERANUS ALVA MOORE, B.S., M.D., Professor of Comparative Pathology and Bacteriology.

LOUIS MUNROE DENNIS, Ph.B., B.S., Professor of Inorganic Chemistry.

WILLIAM RIDGELY ORNDORFF, A.B., Ph.D., Professor of Organic and Physiological Chemistry.

ERNEST GEORGE MERRITT, M.E., Professor of Physics.

ABRAM TUCKER KERR, B.S., M.D., Professor of Anatomy.

GEORGE SYLVANUS MOLER, A.B., B.M.E., Assistant Professor of Physics.

BENJAMIN FREEMAN KINGSBURY, Ph.D., M.D., Assistant Professor of Physiology.

EMILE MONIN CHAMOT, B.S., Ph.D., Assistant Professor of Sanitary Chemistry and Toxicology.

JOHN SANDFORD SHEARER, B.S., Ph.D., Assistant Professor of Physics.

ERNEST BLAKER, B.S., Ph.D., Assistant Professor of Physics.

EUGENE BAKER, B.S., M.D., Lecturer on Obstetrics and Practice of Medicine.

MARTIN BUEL TINKER, B.S., M.D., Lecturer on Surgery.

SAMUEL HOWARD BURNETT, A.B., M.S., D.V.M., Instructor in Comparative Pathology and Bacteriology.

- HUGH DANIEL REED, B.S., Instructor in Systematic and Economic Zoology.
- WILLIAM CROOKS THRO, A.M., Instructor in Histology and Embryology.
- MERVIN TUBMAN SUDLER, Ph.D., M.D., Instructor in Anatomy.
- GERSHOM FRANKLIN WHITE, B.S., Instructor in Bacteriology.
- ARTHUR WESLEY BROWNE, M.S., Ph.D., Instructor in Chemistry.
- WILLIAM CHAUNCEY GEER, A.B., Instructor in Chemistry.
- ELGIN ANGUS GRAY, B.A., M.B., Instructor in Anatomy.
- PETER ANDERSON, M.B., Instructor in Anatomy.
- CARROLL DUNHAM PARTRIDGE, Instructor in Chemistry.
- GEORGE WILBERT COTTIS, M.D., Assistant Demonstrator of Anatomy.
- ELLERY NEWELL PECK, A.B., M.D., Assistant Demonstrator of Anatomy.
- WILLIAM H. CARVETH, M.B., Assistant Demonstrator of Anatomy.
- OMAR RAY GULLION, A.M., Instructor in Pharmacology and Physiology.
- RAL BLOUGH, A.B., Assistant in Chemistry.
- CASSIUS WAY, B.Agr., Assistant in Medical Bacteriology and Pathology.
- WALTER EDWARDS KING, A.B., Assistant in Bacteriology.
- RESTON STEVENSON, Assistant in Chemistry.
- WALTER SCHON LENK, B.S., Assistant in Chemistry.
- EFFIE ALBERTA READ, A.B., Assistant in Histology and Embryology.
- SAMUEL GUY WINTER, A.B., A.M., Assistant in Histology and Embryology.
- ROBERT EDWARD GABY, B.A., Assistant in Physiology.
- FREDERICK ROBERT MILLER, B.A., Assistant in Physiology.
- ARTHUR MALCOM BEAN, A.M., Assistant in Chemistry.
- JOHN W. DAVITT, Assistant in Chemistry.
- THOMAS G. DELBRIDGE, A.B., Assistant in Chemistry.
- CHARLES LYMAN RAND, Assistant in Chemistry.
- HARRY CLIFF LUKE, Ph.G., Assistant in Pharmacology.
-
- ABRAM T. KERR, B.S., M.D., Secretary of the Faculty at Ithaca.

INSTRUCTION AT ITHACA.

DURING THE FIRST TWO YEARS OF THE COURSE.—CALENDAR FOR ITHACA.

First Term—1904-1905.

September 27th, Tuesday.—Academic year begins; matriculation of new students; University scholarship examinations begin.

September 28th, Wednesday.—Matriculation of new students.

September 29th, Thursday.—Registration of matriculated students.

September 30th, Friday.—Instruction begins in all departments of the University at Ithaca. President's annual address to students at 12 M.

December 24th, Saturday.—Christmas recess begins.

January 3d, Tuesday.—Work resumed.

January 11th, Wednesday.—Founder's Day.

February 3d, Friday.—First term closes.

Second Term.

February 6th, Monday.—Registration for the second term.

March 25th, Saturday.—Easter recess begins.

April 4th, Tuesday.—Work resumed.

June 15th, Thursday.—Instruction ends.

June 22d, Thursday.—Thirty-sixth annual commencement.

General Statement.

When in 1898, the Medical Department of Cornell University was established in New York City, by action of the Board of Trustees, it was resolved that the work of the first two years, consisting as it does mainly of fundamental scientific subjects, should also be given in Ithaca, where the opportunities offered by the long established departments of Botany, Zoology, Physics, Chemistry, Physiology, Embryology, and Bacteriology afford unusual advantages for thorough study. The remaining subjects of the first two years were also fully provided for.

Among the facilities of the University of special value to the Medical College may be mentioned the museums of Vertebrate and Invertebrate Zoology, including Entomology, Comparative Anatomy, of Agriculture, of Botany, and of Geology. The University Library, with its 250,000 bound volumes, 40,000 pamphlets, and 600 current periodicals and transactions, is likewise as freely open to medical students as to other University students.

Stimson Hall.

Through the generosity of the late Dean Sage of Albany, the University has been enabled to erect this building especially designed for anatomy, histology, embryology, and physiology. The building is constructed of Ohio sandstone, similar to the library and law school. The general form is that of an E, 157 feet long and 50 feet wide, with wings 40 feet square.

In the cellar are situated the cold-storage, embalming, and cremating rooms, a large room 40 feet square for aquaria, projection, etc., and store rooms.

In the basement is a room for the ventilating and cold-storage machinery, a recitation room, a large lecture room, and the office of the departments of surgery, medicine and obstetrics, besides the lower part of the large amphitheatre.

On the first floor are located the cloak rooms for men and women, college office, library, faculty room, office and private laboratory of the Professor of Histology, two recitation rooms, upper part of the large amphitheatre, and assembly room.

The second floor is devoted to the departments of histology and physiology, each with a large general laboratory, a research laboratory, preparation rooms, and private laboratories for the staff of instruction.

The third floor consists of the general and special dissecting rooms, study rooms, and amphitheatre, besides rooms for the staff.

The attic is utilized for photography, macerating the skeletons, and for storage.

The greatest pains have been taken for ventilation. The lighting is almost perfect in all the rooms.

DEPARTMENTS, METHODS, AND FACILITIES.**Anatomy.**

ABRAM T. KERR, B.S., M.D., Professor.

MERVIN T. SUDLER, Ph.D., M.D., Instructor.

PETER ANDERSON, M.B., Instructor.

ELGIN A. GRAY, B.A., M.B., Instructor.

GEORGE W. COTTIS, M.D., Assistant Demonstrator.

ELLERY N. PECK, A.B., M.D., Assistant Demonstrator.

WILLIAM H. CARVETH, M.B., Assistant Demonstrator.

Anatomy is given in both the first and second years. The work consists of dissection, recitations and demonstrations to small sections of the class. Special attention is given to the practical work in the

laboratory, all of which is concentrated into the first term, thus enabling the student to devote a large amount of time continuously to the work.

In the first year, thirty-two and a half hours per week are devoted to laboratory work. The class is divided into three groups, one assigned to the dissection of the head and neck, one to the upper extremity, and one to the lower extremity. The students of each group start simultaneously in September to study the bones of their part. Upon completing these, they at once take up the dissection. Upon the satisfactory completion of one part, the bones and dissection of another are taken up in a similar way. The laboratory work is accompanied by frequent recitations and demonstrations to small groups. In the latter part of the term, to prepare the students for Histology and Physiology an elementary course of demonstrations on the thoracic and abdominal viscera is given.

During the second year, first term, twenty-five hours per week are devoted to laboratory work. The student is expected to dissect the thoracic and abdominal viscera and the central nervous system. The work on the viscera is given in the first part of the term. The dissection is accompanied by frequent recitations and demonstrations to small groups. The work on the central nervous system is concentrated into the latter part of the term. The laboratory work is accompanied by recitations and demonstrations. The Gross Anatomy is given at the same time as the work in Histology and Embryology, and is followed by the Physiology. The work of the three departments is correlated into one continuous course. In the demonstrations the practical application of Anatomy to Medicine and Surgery is emphasized.

In the second term of the second year there are two demonstrations per week on topographical and regional anatomy given to small sections of the class. In these special dissections will be shown to the students, and their attention called to the practical bearing of Anatomy on Medicine and Surgery.

During the two years the student is required to make at least one complete dissection of the human body. The dissecting material is kept in cold storage so as to be ready for use when needed. In the first year a complete disarticulated skeleton is loaned to each two students. The work is personal and practical, each student being independent of the others, so that those with special training or ability are in no way retarded by the slower members of the class. The students are encouraged to make careful notes and drawings, and to record all variations from their text-book descriptions. For this

purpose they are furnished with outline record charts. Clay also is furnished so that the students may model the bones or other parts if they so desire. The Department is well equipped with models and special preparations. These are used in the demonstrations, and are also available for the personal use of the students in the laboratory.

Those who have satisfactorily completed the required work, and others properly qualified, will be given opportunity to do advanced and research work.

1. **Anatomy.** Laboratory work with section demonstrations and recitations, thirty-two and a half actual hours weekly from September to February. Professor KERR, Instructors GRAY and ANDERSON, Assistant Demonstrators COTTIS, PECK and CARVETH. The whole of Course 1 is required of first-year students in Medicine; for students in Arts the course may be divided.

2. **Anatomy.** Laboratory work with section demonstrations and recitations, twenty-five actual hours weekly. September to February. Professor KERR, Instructors ANDERSON and GRAY, Assistant Demonstrators COTTIS, PECK and CARVETH. The whole of Course 2 is required of second-year students in Medicine; for students in Arts the course may be divided.

3. **Topographical and Regional Anatomy.** Section demonstrations two and a half hours weekly. February to June. Dr. SUDLER. (Required of second-year students in Medicine. Open to those students in Arts who have had Course 1.)

4. **Thoracic and Abdominal Viscera.** Section demonstrations two and a half hours weekly required of second-year students in Medicine. September to February. Professor KERR.

6. **Advanced and Research Work.** Laboratory work, elective. Eight or more actual hours per week required of second-year students in Medicine. Professor KERR and Instructors.

8. **Structure, Development, and Physiology of the Nervous System and the Organs of Sense.** Credit three hours. Second year. Professors GAGE, KERR and KINGSBURY. Required of second-year students in medicine.

The course consists of three parts: (A) Gross anatomy with special reference to medicine and surgery, Professor KERR; (B) Histology and development, Professor GAGE; (C) Physiology, Dr. KINGSBURY.

The instruction in each part consists of laboratory work, demonstrations or lectures and recitations. The gross anatomy, histology and development, are given together during the latter part of the first term, and are immediately followed by the Physiology in the first part of the second term.

Microscopy, Histology and Embryology.

SIMON H. GAGE, B.S., Professor of Histology and Embryology.

WILLIAM C. THRO, A.M., Instructor.

EFFIE ALBERTA READ, A.B., Assistant.

SAMUEL G. WINTER, A.B., A.M., Assistant.

Assistant.

As indicated by the following courses, this department offers elementary and advanced instruction in the theory and use of the microscope and its accessories, in photo-micrography, in vertebrate histology, and vertebrate embryology; and opportunities for research in all of these subjects.

The material equipment consists of a good supply of modern microscopes, while camera lucidas, polariscopes, micro-spectroscopes, photo-micrographic cameras, microtomes and other special apparatus are in sufficient numbers to give each student opportunity for personally learning to use them, and for applying them to any special study in which they are called for. Two projection microscopes are available for class demonstrations and for making the drawings used in wax-plate reconstruction. The collection of histologic and embryologic specimens is extensive and constantly increasing.

The rooms for the use of the department are on the first and second floors of Stimson Hall. They are almost perfectly lighted and consist of a large general laboratory, a research laboratory, a preparation room, and two laboratories for the instruction staff, where also special demonstrations of difficult subjects are given to small groups of students.

The aim of the department is to bring the student into direct contact with the truths of nature, and hence, while there are demonstration lectures to give broad and general views, there is a large amount of laboratory work in which the facts are learned at first hand, and the methods and manipulations necessary for acquiring the facts are practised by each student. It is recognized that less ground can be covered in a given time in this way, but it is believed, and experience has confirmed the belief, that the intellectual independence and power to acquire knowledge direct from nature which is gained by this personal work is of far higher value than the facts and theories that might be learned in the same time from books and lectures alone, or from specimens prepared by some other individual.

This lake region with its rich and varied fauna is especially favorable for investigations in the histology and embryology of all the main groups of vertebrates; and the proximity of the abattoirs in the

city makes it possible to obtain material for the study of the development of the sheep, cow, and pig. The clinic and veterinary department supply material for the embryology of the cat and dog, so that the opportunities for research upon the development of the domestic animals are excellent. Every encouragement is given for the fullest utilization of these opportunities.

1. **Microscopy, Histology and Embryology.** Second half year. Credit 8 hours. Two demonstration-lectures, W. and F., 5; two recitations, and 12 hours of laboratory work in 3 hour periods, by appointment. Professor GAGE, Instructor THRO and Assistants READ, WINTER and _____.
Course 1 is not open to Freshmen in Arts.

Microscopy.—The aim is to give a working knowledge of the theory and use of the microscope and its accessories, methods of mounting microscopical specimens, etc. It serves as a basis for all the subsequent work of the department. The work begins with the 2d term and continues two weeks.

Histology.—This includes the study of the fine anatomy of the domestic animals and of man, and also the fundamental methods of histologic investigation and demonstration. This work continues 7 weeks.

Embryology.—This deals with the elements and methods of embryology in the amphibia, in the domestic animals, especially the chick and the pig, and in man. The instruction in Embryology continues 7 weeks.

4. **Research in Histology and Embryology.** Laboratory work eight or more actual hours per week with seminary throughout the year. This course is designed for those preparing theses for the baccalaureate or advanced degrees and for those wishing to undertake special investigations in histology and embryology. Professor GAGE and Mr. THRO.

Course 4 is open only to those who have taken course 1, or its equivalent in some other university. Drawing, and a reading knowledge French and German are indispensable for the most successful work of in this course.

Subjects for theses should be decided upon as early as possible so that material in suitable stages of development and physiologic activity may be prepared.

5. **Structure and Physiology of the Cell.** First half-year. Two lectures per week at hours to be arranged. This course is designed for students of biology and medicine, and gives the fundamental facts

and principles relating to cell structure and activity, especially in their bearing on general problems of biology and theories of evolution and heredity. Open to students who have had satisfactory courses in zoology, botany or physiology, or course I. Assistant Professor KINGSBURY.

7. **Seminary.** One lecture or seminary each week at an hour to be arranged. At the seminary, there will be presented reports of special methods and the results of advanced work. Professor GAGE.

8. **Structure, Development and Physiology of the Nervous System and the Organs of Sense.** Credit 3 hours. Professors GAGE, KERR and KINGSBURY.

The course consists of three parts : (A) Gross Anatomy with special reference to medicine and surgery, Dr. KERR ; (B) Histology and Development, Prof. GAGE and Instructor THRO ; (C) Physiology, Dr. KINGSBURY.

The instruction in each part consists of laboratory work, demonstrations or lectures and recitations. The gross anatomy, histology and development are given during the latter part of the first term, and are immediately followed by the physiology in the first part of the second term. This course is only open to students who have done work in human or comparative anatomy and have completed course I. It is a regular part of the curriculum of second year students in medicine.

NOTE.—For the work of this department the student will find a knowledge of Latin and Greek of the greatest advantage. A year's study of Latin, three to five recitations per week, and of Greek, Goodell's Greek in English, or Coy's Greek for beginners, would represent the minimum amount needed. For all courses, the ability to draw well freehand, and a good reading knowledge of French and German are desirable, and for research work almost indispensable.

Neurology.

BURT GREEN WILDER, B.S., M.D., Professor.

HUGH DANIEL REED, B.S., Ph.D., Instructor.

ARTHUR MALCOLM BEAN, A.M., Assistant.

Neurology, Course 3.—Second term of the second year. One lecture per week, and one practicum or demonstration. In the lectures are considered (*a*) the principal modifications of the vertebrate brain ; (*b*) the structure and peculiarities of the human brain ; (*c*) the cerebral fissures as criteria of zoologic or racial affinity, as indexes of physical or mental quality or power, and as boundaries of the cortical areas. At the practicums representative vertebrate brains

are compared; the sheep's brain is dissected and with it are compared the brains of the cat, dog, rabbit and monkey; preserved dissections of the human brain are examined. All specimens are drawn. There is given a demonstration of the methods of removing and preparing the human brain for the elucidation of morphologic points. For the illustration of this course there are numerous diagrams representing actual preparations of the brains of man and other vertebrates. The neurologic division of the museum comprises about 1,500 preparations, distributed as follows, in round numbers: Human adults and children, 420; human embryo, fetal and at birth, 213; apes and monkeys, 232; other mammals, 400; other vertebrates, 185. The members of the class have at all times free access to the lecture room, where are kept standard manuals, treatises and monographs. Opportunities for research are offered. Credit, 2 hours.

For other courses in Neurology, see page 192.

Physiology.

BENJAMIN FREEMAN KINGSBURY, Ph.D., M.D., Assistant Professor.

OMAR RAY GULLION, A.M., Instructor.

ROBERT EDWARD GABY, B.A., Assistant.

FREDERICK ROBERT MILLER, B.A., Assistant.

The work in the Department is carried on by means of lectures, demonstrations, laboratory work and recitations. The laboratory course is intended to introduce the student to methods of laboratory work in Physiology, to have him become acquainted with certain fundamental facts at first hand and to learn to draw conclusions from the facts. The part of Physiology so taken up in the laboratory covers the Physiology of muscle, nerve, heart and circulation, blood (in part), eye and central nervous system. Special stress is laid on the points and apparatus of importance in later clinical work.

The recitations cover the entire field of Physiology. Numerous demonstrations are given in the laboratory and recitations to supplement the lecture-demonstrations and student experiments.

The lectures are intended to unify the work of the Department.

The physiology of the central nervous system and organs of sense is given in the second year, after the student has had preparatory work on the anatomy and histology.

1. **Physiology Lectures.** Three lectures each week, second half-year. Assistant Professor KINGSBURY.

2. **Recitations and Demonstrations in Physiology.** Three hours each week in assigned sections. Second half-year. Assistants GABY and MILLER.

4. Recitations and Demonstrations in Physiology. The Nervous System and Organs of Special Sense. Two hours each week. Second half-year. In assigned sections. Instructor GULLION.

5. Physiology Laboratory. Eight actual hours each week. Second half-year, in assigned sections. Assistant Professor KINGSBURY and Instructors.

6. Structure and Physiology of the Cell. First half-year. Two lectures per week at hours to be arranged. This course is designed for students of biology and medicine, and gives the fundamental facts and principles relating to cell structure and activity, especially in their bearing on the general problems of biology and theories of evolution and heredity. Open to students who have had satisfactory courses in zoology, botany or physiology, or course 1 in histology and embryology. Assistant Professor KINGSBURY.

7. Research and Advanced Work in Physiology. Eight or more actual hours per week. Assistant Professor KINGSBURY.

8. Structure, Development, and Physiology of the Nervous System and the Organs of Special Sense. Credit, 3 hours. Second year. Professors GAGE, KINGSBURY and KERR.

The course consists of three parts: (a) Gross anatomy with special reference to medicine and surgery, Professor KERR; (b) Histology and development, Professor GAGE; (c) Physiology. Assistant Professor KINGSBURY.

The instruction in each part consists of laboratory work, demonstrations or lectures, and recitations. The gross anatomy, histology and development are given together during the latter part of the first term, and are immediately followed by the physiology in the first part of the second term.

9. Special Physiology Laboratory. Five or more actual hours per week. An arrangement of experiments intended to meet the needs of students of natural science. Assistant Professor KINGSBURY and Instructors.

Courses 1, 2 and 5 are required of first year, and courses 4 and 8 of second-year students in Medicine.

For courses in Comparative Physiology, see page 314.

Materia Medica and Pharmacology.

BENJAMIN FREEMAN KINGSBURY, Ph.D., M.D., Assistant Professor.

OMAR RAY GULLION, A.M., Instructor.

HARRY CLIFF LUKE, Ph.G., Assistant.

_____, Assistant.

In this Department, the work required of medical students consists of a laboratory course of six hours, in which two hours are devoted to lecture-demonstrations on the action of drugs, their classification, pharmaceutical methods and preparations, and in which practice in prescription writing is given.

In the laboratory, the student makes a large number of pharmacopœial preparations, compounds numerous prescriptions, makes certain special preparations, and tests the physiological action of a number of selected drugs.

This course is offered as a preparation for the work in *Materia Medica* and *Therapeutics* given in the third and fourth years.

1. *Materia Medica. Pharmacology. Laboratory and Demonstrations.* Four hours laboratory work, and two hours demonstrations each week. Second half-year. Assistant Professor KINGSBURY and Instructors.

2. *Advanced and Research Work in Pharmacology.* Assistant Professor KINGSBURY.

For courses in Comparative *Materia Medica* and *Pharmacology*, see page 315.

Physics.

EDWARD LEAMINGTON NICHOLS, B.S., Ph.D., Professor.

ERNEST GEORGE MERRITT, M.E., Professor.

GEORGE SYLVANUS MOLER, A.B., B.M.E., Assistant Professor.

JOHN SANFORD SHEARER, B.S., Ph.D., Assistant Professor.

ERNEST BLAKER, B.S., Ph.D., Assistant Professor.

The instruction in physics is by means of lectures throughout the year. In these lectures the general laws of mechanics and heat, electricity and magnetism, and sound and light are presented. The very large collection of lecture-room apparatus possessed by the department makes it possible to give experimental demonstrations of all important phenomena. The arrangements for experimental work are most complete. Ordinary illuminating gas, acetylene, oxygen and hydrogen, compressed air, water and steam, blast and vacuum are within easy reach, and electric currents from alternating and direct current dynamos and from storage batteries are available. A masonry pier 4 X 12 feet permits the use in the lecture room of delicate apparatus that could otherwise be used only in the laboratory. A small turbine on the lecture table furnishes power for a variety of experiments. Lanterns with lime or electric light are always ready for use when they can in any way aid a demonstration.

The required course (7) in physics for medical students consists of two lectures a week throughout the first year, and the reading of a

text-book. Note-books prepared by members of the class are read and graded at frequent intervals. A longer course (2b) consisting of two lectures a week, two recitations a week, and one afternoon in the laboratory, is likewise open to medical students, and all those who can find the time to do so, are urged to take this course in place of the required work mentioned above. It should be chosen in preference to the latter by all who wish to prepare themselves for advanced work in the biological sciences. The lectures in this course are supplemented by thorough drill upon the principles of the science, and this, together with the laboratory practice, affords opportunity for a much more adequate knowledge than can be obtained from any course that consists solely of lectures.

During the second term the department offers a course in practical photography (Physics 9; two hours), consisting of lectures and laboratory practice. This course is open to students of medicine under the conditions stated upon page 160 of the University Register.

7. Elementary Physics. Two lectures, with demonstrations, weekly throughout the year. Required of first-year students in Medicine. Assistant Professor SHEARER.

For additional courses in Physics, see page 160.

Chemistry.

LOUIS MUNROE DENNIS, Ph.B., B.S., Professor of Inorganic Chemistry.

WILLIAM RIDGELY ORNDORFF, A.B., Ph.D., Professor of Organic and Physiological Chemistry.

EMILE MONNIN CHAMOT, B.S., Ph.D., Assistant Professor of Sanitary Chemistry and Toxicology.

ARTHUR WESLEY BROWNE, M.S., Ph.D., Instructor in Chemistry.

WILLIAM CHAUNCEY GEER, A.B., Instructor in Chemistry.

CARROLL D. PARTRIDGE, Instructor in Chemistry.

EARL BLOUGH, A.B., Assistant in Chemistry.

WALTER SCHON LENK, B.S., Assistant in Chemistry.

RESTON STEVENSON, A.B., Assistant in Chemistry.

JOHN W. DAVITT, Assistant in Chemistry.

THOMAS G. DELBRIDGE, A.B., Assistant in Chemistry.

CHARLES LYMAN RAND, Assistant in Chemistry.

Inorganic Chemistry.—The elements of Inorganic Chemistry are taught by lectures, laboratory work, and recitations. The lectures are profusely illustrated by experiments and lantern projection, and while presenting the fundamental concepts of chemical theory are

also largely descriptive in character. Experiments illustrating the principles discussed in the text-book are performed in the laboratory by each student.

Qualitative Analysis.—The qualitative analysis begins with the study of such reactions of the commoner elements and their compounds as are used in their detection. This is followed by the practical application of the knowledge thus gained to the analysis of unknown substances, both in the solid form and in solution. The work is accompanied by thorough drill in the writing of chemical equations.

Organic Chemistry, or the Chemistry of the Compounds of Carbon.—In this course the study of the typical compounds of carbon, their properties, reactions, and relations to one another, is taken up, especial attention being given to those organic substances that are of physiological importance. The course consists of lectures and recitations, supplemented by frequent written examinations. The lectures are fully illustrated by experiments, specimens of the compounds considered, and charts.

Toxicology.—This course is intended to serve as an introduction to the methods employed for the separation and identification of the common poisons, inorganic and organic. Special attention is given to the identification of poisons when present in organic matter, such as animal excretions and tissues, medicines, etc. This course also includes the identity tests for a few synthetic remedies.

Physiological Chemistry.—The work in this course comprises the study of the chemistry of the proteids, carbohydrates, and fats, and of the compounds found in the animal body which are of physiological and pathological importance. The method of instruction is by lectures, recitations, and laboratory work, with frequent written reviews. In the laboratory the student separates from the various animal fluids and organs the chemical compounds which they contain, studies their properties, reactions, and products of decomposition, and thus familiarizes himself with the methods of isolation and identification of these products.

The above courses in Chemistry are required of all students in medicine. Other advanced courses are open to properly qualified students in medicine, and especial facilities for research work in chemistry are at their disposal.

1. **Introductory Inorganic Chemistry.** Three lectures, one recitation and five hours of laboratory work, weekly. First half-year. Professor DENNIS, and Messrs. GEER, RAND, STEVENSON and —.

8. **Qualitative Analysis.** One lecture and five hours of laboratory, weekly. Second half-year till April 22. Dr. BROWNE, Messrs. BLOUGH, DAVITT, DWYBRIDGE and —.

68. **Toxicology.** One lecture and five hours laboratory work, weekly. Second half-year after Easter. Assistant Professor CHAMOT and Mr. LENK.

32a. **Elementary Organic Chemistry.** Two hours. Lectures and written reviews weekly. First half-year. Dr. ORNDORFF.

40. **Physiological Chemistry.** Two hours lectures and written reviews. Second half-year. Dr. ORNDORFF.

41. **Physiological Chemistry.** Credit 3 hours. Seven and one-half hours laboratory work weekly. Second half-year. Dr. ORNDORFF and Mr. PARTRIDGE.

Courses 1, 8, 68 and 32 are required in the first year and courses 40 and 41 in the second year of the medical course.

For additional courses in Chemistry, see page 171.

Bacteriology.

VERANUS ALVA MOORE, B.S., M.D., Professor.

SAMUEL HOWARD BURNETT, A.B., M.S., Instructor.

GERSHOM FRANKLIN WHITE, B.S., Instructor.

WALTER EDMONDS KING, B.A., Assistant.

CASSIUS WAY, B.Agr., Assistant.

The instruction in Bacteriology is given by means of lectures, recitations and laboratory work. The bacteriological laboratories are well supplied with the best modern apparatus. The student will, under proper supervision, prepare culture media, make cultures, and study the morphology of bacteria in both the fresh (living) condition and in stained cover-glass preparations. In fact, all of the technique necessary for a practical working knowledge in bacteriology will be carefully covered. The more important species of pathogenic bacteria will be studied. The special methods which are necessary for diagnosing such diseases as tuberculosis, anthrax, glanders and diphtheria will receive careful attention. Disinfection, sterilization, the means by which pathogenic bacteria are disseminated, protective inoculation, and other kindred subjects will be considered.

43. **Bacteriology.**—Two lectures and ten hours laboratory work each week. Second half-year. Required of second year medical students. Professor MOORE, Instructor WHITE and Mr. KING.

44. **Research in Bacteriology.**—Laboratory work with lectures and seminary throughout the year. Professor MOORE and Mr. WHITE. The course is designed for those wishing to undertake original investigation in Bacteriology preparatory to practical work in bacteriological lines, such as exists in health department laboratories. This course

is open to students who have taken Course 43 or its equivalent in some other university. Elementary chemistry and a reading knowledge of French and German are indispensable for successful work in this course.

General Pathology.

VERANUS ALVA MOORE, B.S., M.D., Professor.

SAMUEL HOWARD BURNETT, A.B., M.S., Instructor.

GERSHOM FRANKLIN WHITE, B.S., Instructor.

WALTER EDMONDS KING, B.A., Assistant.

CASSIUS WAY, B.Agr., Assistant.

The course in pathology consists of lectures, recitations, and laboratory work in pathological histology. The student will also be given instruction in describing gross pathological specimens, but the major part of the work in the laboratory will consist in studying sections of diseased tissue and making drawings from the same. In this course it is expected that the student will become familiar with the terms used in morbid anatomy, together with a definite knowledge of the more important changes found in inflammation and the various forms of infiltrations and degenerations.

40. **Pathology.**—Two lectures or recitations and six hours laboratory work each week. First term to Christmas vacation. Professor MOORE, Instructors BURNETT and WHITE. This course is open to students who have had Course 1 in Microscopy.

45. **Research in Pathology.**—Laboratory work throughout the year. Professor MOORE and Instructor BURNETT. This course is open to students who have taken Course 40 and have taken or are taking Course 43, or the equivalent in some other university.

Surgery.

MARTIN BUEL TINKER, B.S., M.D., Lecturer on Surgery.

Two hours weekly throughout the year, recitations, demonstrations and occasional lectures. The course is given to small sections, and is intended to familiarize the student with the principles of General Surgery and Surgical Pathology. Demonstrations are used whenever possible in teaching such subjects as Surgical Bacteriology, the histological changes in wound repair and the general principles of diagnosis and treatment of surgical diseases and injuries. Having in mind the present great importance of ability to pass examinations as well as with the aim of teaching systematic and concise arrangement and expression, frequent written exercises are given. Recitations are adopted as the principal method of instruction with the belief that

for the average student information is best assimilated and retained and acquired by personal effort. Lectures are given whenever they seem likely to be helpful in supplementing other methods of instruction.

I. **Surgery.**—Recitations, demonstrations or lectures. Two class exercises weekly in small sections. Dr. TINKER.

Medicine.

EUGENE BAKER, B.S., M.D., Lecturer on Medicine.

No didactic lectures are delivered, their place being taken by recitations from a standard text book.

Recitations. The study of medicine proper is begun with systematic recitations from *Modern Medicine*, by Salinger and Kaltiger. In these recitations the nomenclature, etiology, pathology, and symptomatology of typical cases of diseases are considered, the question of treatment not being taken up until the junior year in New York.

I. **Medicine.** Two recitations weekly. Second half-year. Required of second-year students in medicine. Dr. BAKER.

Obstetrics.

EUGENE BAKER, B.S., M.D., Lecturer on Obstetrics.

Instruction in obstetrics consists mainly of recitations from a standard text-book, these recitations covering the anatomy of the internal genitalia and pelvis, ovulation, menstruation, signs of pregnancy, the physiology, mechanism and clinical course of normal labor, and the care of mother and child during the puerperium. Whenever necessary, these recitations will be illustrated by plates, casts, and demonstrations upon the obstetric manikin, etc.

I. **Obstetrics.** Two recitations weekly. First half-year. Required of second-year students in medicine. Dr. BAKER.

SCHEDULE AND SUMMARIZED STATEMENT.

In this schedule the Counts or University hours are given on the following basis: One recitation or lecture weekly for one term or half-year gives a credit of one; for laboratory work it requires two and one-half actual hours weekly for a term or half a year to secure a credit of one. In the courses of instruction following the schedule, the actual time required each week of the student at lectures, recitations, and laboratory work is stated.

<i>Freshman Year.</i>	No. Course.	1st Term.	2d Term.	Actual Hours per Week
Anatomy	I	13	-	32½
Chemistry	I	6	-	9
Physics	7	2	2	2
Histology	I	-	8	16
Physiology Lectures	I	-	3	3
Physiology Recitations	2	-	3	3
Physiology Laboratory	5	-	3	8
Qualitative Chemical Analysis	8	-	2	-
Toxicology	68	-	1	6
Organic Chemistry	32a	-	2	2

<i>Sophomore Year.</i>	No. Course.	1st Term.	2d Term.	Actual Hours per Week
Anatomy	2	10	-	25
Anatomy	4	I	-	2½
Organic Chemistry	32	3	-	3
Physiology Laboratory	5a	2	-	5
Pathology	40	3	-	8
Obstetrics	I	2	-	2
Surgery	I	2	2	4
Nervous System	8	2	I	2½
Physiology Recitations	4	-	2	2
Physiological Chemistry	40	-	2	2
Physiological Chemistry	41	-	3	8
Anatomy	3	-	I	I
Bacteriology	43	-	6	12
Materia Medica	I	-	2	6
Medicine	I	-	2	2
Neurology	3	-	-	-

Junior Year. For subjects, see Register, as given in New York City.

Senior Year. For subjects, see Register, as given in New York City.

SUMMARY OF COURSES OF INSTRUCTION.

FIRST YEAR.

i. Anatomy. Laboratory work with section demonstrations and recitations, thirty-two and a half actual hours weekly. Credit, 13 university hours. First half-year. The whole of Course I is required of first-year students in Medicine; for students in Arts the course may be divided. Professor KERR, Instructors GRAY and ANDERSON, Assistant Demonstrators COTTIS, PECK, and CARVETH.

i. Introductory Inorganic Chemistry. Three lectures, one recitation, and five hours of laboratory work. Lectures M., W., F.,

II; recitation, W., 8; laboratory work, T., 8-II, Th., 8-10. First half-year. Professor DENNIS and Mr. GEER; Messrs. RAND, STEVENSON, and —.

7. **Elementary Physics.** Two lectures with experimental demonstrations weekly throughout the year. M. and W., 9. Assistant Professor SHEARER.

1. **Microscopy, Histology, and Embryology.** Second half-year. Credit, 8 University hours. Two demonstration lectures, two recitations, and twelve hours of laboratory work weekly during the second half-year. Lectures, W., F., 5; recitations, W., 8, S., II; laboratory work, M., T., 2-5, F., 9-12, S., 8-II. Professor GAGE, Instructor THRO, and Assistants READ, WINTER, and —.

1. **Physiology Lectures.** Three lectures each week. M., 10; T., 12; F., 2. Second half-year. Assistant Professor KINGSBURY.

2. **Physiology Recitations and Demonstrations.** Three hours each week. Second half-year. M., 8; T., 5; F., 12. Assistants GABY and MILLER.

5. **Physiology Laboratory.** Credit, 3 hours. Eight hours each week. Second half-year. In assigned sections. M., 12-1; T., 9-12; Th., 2-5; F., 3-4, or M., 5-6; W., 2-5; Th., 10-1; F., 4-5. Assistant Professor KINGSBURY and Instructors.

8. **Qualitative Analysis.** One lecture and five hours of laboratory weekly. Lecture, S., 12; laboratory, W., 10-1; Th., 8-10. Second half-year till Easter. Dr. BROWNE, Messrs. BLOUGH, DAVITT, DELBRIDGE, and —.

68. **Toxicology.** One lecture and five hours laboratory work weekly. Second half-year after Easter. Lecture, Th., 5; laboratory, W., 10-1; Th., 8-10. Assistant Professor CHAMOT and Mr. LENK.

32a. **Elementary Organic Chemistry.** Two hours weekly. Lectures and written reviews. T., F., 8. Second half-year. Dr. ORNDORFF.

SOPHOMORE YEAR.

2. **Anatomy.** Laboratory work with section practicums and recitations twenty-five actual hours weekly. First half-year. The whole of course 2 is required of second year students in Medicine; for students in Arts, the course may be divided. Professor KERR; Instructors GRAY and ANDERSON; Assistant Demonstrators COTTIS, PECK, and CARVETH.

4. **Anatomy. Thoracic and Abdominal Viscera.** Section demonstrations two and a half hours weekly. First half-year. Professor KERR.

32. **Elementary Organic Chemistry.** Three hours weekly. Lectures and written reviews. First half-year. M., W., Th., 8. Dr. ORNDORFF.

33. **Physiology Laboratory.** Credit two hours. Five actual hours each week. First half-year. In assigned sections. M., 2-5; F., 2-4; or Th., 2-5; S., 8-10. Assistant Professor KINGSBURY and Instructors.

40. **Pathology.** Two lectures or recitations and six hours laboratory work each week. First term to Christmas vacation. Credit three University hours. Lectures, M., T., 9; laboratory, M., F., 2-5, or Th., 2-5; S., 8-11. Professor MOORE and Instructors BURNETT and WHITE.

1. **Obstetrics.** Two recitations weekly. First half-year. M., Th., 5. Dr. BAKER.

1. **Surgery.** Recitations, demonstrations, or lectures. Two hours weekly in small sections. First term, T., F., 11 or 12; second term, T., Th., 11 or 12. Dr. TINKER.

8. **Structure Development and Physiology of the Nervous System and Organs of Sense.** Credit, three hours. The gross anatomy, histology, and development are given together during the latter part of the first term, and are immediately followed by the physiology in the first part of the second term. In assigned sections. Professors GAGE, KERR, and KINGSBURY.

4. **Physiology Recitations and Demonstrations.** The Nervous System and Organs of Special Sense. Two hours a week. Second half-year. T., S., 10, or T., 11; S., 8. Instructor GULLION.

40. **Physiological Chemistry.** Two hours weekly. Lectures and written reviews. Second half-year. M., W., 8. Dr. ORNDORFF.

41. **Physiological Chemistry Laboratory.** Credit, three hours. Seven and a half hours' laboratory work weekly. Second half-year. M., W., or T., Th., 2-5-30. Dr. ORNDORFF and Mr. PARTRIDGE.

3. **Topographical and Regional Anatomy.** Section demonstrations two and a half hours weekly. Credit, one hour, February to June. Dr. SUDLER.

43. **Bacteriology.** Two lectures and ten hours' laboratory work each week. Second half-year. Credit, six University hours. Lectures, M., T., 9; laboratory, M., 10-1; W., 4-6; Th., 8-10; F., 2-5, or T., 2-4; Th., 2-5; F., 11-1; S., 10-1. Professor MOORE; Instructor WHITE and Mr. KING.

1. **Materia Medica and Pharmacology.** Laboratory and demonstrations. Four hours laboratory work, and two demonstrations each week. Credit 3 University hours, Second half-year.

Demonstrations, T. and F., 8, Laboratory M., 2-4, F., 9-11, or T. 4-6, Th., 8-10. Assistant Professor KINGSBURY and Assistant LUKE.

1. **Medicine.** Two recitations weekly. Second half-year. W., 11, F., 5. Dr. BAKER.

3. **Neurology.** One lecture and one practicum or demonstration weekly. Second half-year. Professor WILDER.

6. **Anatomy. Advanced and Research Work.** Eight or more actual hours laboratory work per week. Professor KERR and Instructors.

4. **Research in Histology or Embryology.** Laboratory work eight or more actual hours per week, with seminary throughout the year. Professor GAGE.

5. **Structure and Physiology of the Cell.** First half-year. Two lectures per week at hours to be arranged. Open to students who have had satisfactory courses in Zoology, Botany, Physiology, or Histology. Assistant Professor KINGSBURY.

7. **Research and Advanced Work in Physiology.** Eight or more actual hours per week. Assistant Professor KINGSBURY.

9. **Special Physiology Laboratory.** Five or more actual hours per week. An arrangement of experiments intended to meet the needs of students of natural science. Assistant Professor KINGSBURY and Instructors.

2. **Advanced and Research Work in Pharmacology.** Assistant Professor KINGSBURY.

For Courses in Comparative Physiology, Materia Medica, and Pharmacology, see pages 314 and 315.

For advanced and research work in Pathology and Bacteriology see page 316.

For other courses in Neurology, see page 192.

For other courses in Physics see page 160.

For other courses in Chemistry see page 171.

Seven Year Course for the Degree in Arts (A.B.), and in Medicine (M.D.)

As a liberal education in the arts and sciences is of great advantage to prospective students of medicine, all who can are urged to take the freshman, sophomore, and junior years in the Academic Department at Ithaca. After the completion of these years in the Academic Department (in which all the work is elective), the student is permitted to elect, as the fourth year of his A.B. course, a year's work in the Medical Department at Ithaca. He may then take his fifth year of work—the second of the medical course—either in Ithaca or in New

York, but he must take the last two years of the medical course in New York. In this way he will obtain the A.B. degree at the end of four years, and the M.D. at the end of seven years of study. This is possible, because the first two years of the medical course in New York are offered in duplicate at the University in Ithaca.

Students who have taken the A.B. degree, as above, will, if they have anticipated in the Academic Department scientific studies prescribed in the medical course, be admitted to advanced standing in the Medical College in New York.

REQUIREMENTS FOR ADMISSION.

For admission to the Ithaca division of the Cornell University Medical College, a medical-student certificate issued by the Regents is required. (For details, see page 231.) No student is admitted except at the beginning of the college year in September.

RESIDENCE AND REGISTRATION.

The college year is nine months long, extending from the last of September till about the middle of June, and is divided into two nearly equal terms. (For exact dates, see calendar on page 1.)

Residence in Ithaca is required of all students. For leave of absence during the session, application should be made to the Secretary, Dr. Kerr.

At the beginning of the term (September 27-29, 1904, and February 6, 1905), students must register with the University Registrar, Room 9a, Morrill Hall. After registration with the University Registrar, they must register with the Secretary of the Medical College, Dr. Kerr, in Stimson Hall.

SCHOLARSHIPS. (See pages 58-61.)

EXAMINATIONS.

Students are advanced in course from one year to the next upon passing examinations upon the work of that year. As in the academic department, the work of each year is considered final of itself. There is no unnecessary repetition of subjects taught from year to year. According to the usage of the other departments the university student found to be markedly deficient will be dropped from the college.

ADVANCEMENT FROM SECOND TO THIRD YEAR.

Upon the completion of the two years in Ithaca, the student must obtain from the Faculty a statement of all the work which he has done; and accompanying this statement must be a recommendation that he be allowed to register in the New York division. As a student is not advanced from one year to another in the New York division until all the work of the year is completed, a student from Ithaca can not enter the third-year class in New York until the entire schedule of the first two years has been successfully completed. For removing any conditions, examinations are held at the beginning of the fall term, both in Ithaca and in New York City. The student is at liberty to take these examinations in Ithaca or in New York City. The examination on a subject in either place is final for that year. That is, the student will not be permitted to try an examination on a subject in Ithaca, and take advantage of the later date for the examination in New York to have a second examination on the same subject in the same autumn.

If a student is deficient in two or more subjects there is no objection to his taking the examination in one or more subjects in Ithaca, and the remaining ones in New York, the same autumn.

MEDICAL SOCIETY.

The Cornell Medical Society is a student organization. At the meetings, papers prepared by the members are read, followed by general discussion. The aim is to give mutual aid in gaining general and special medical knowledge, facility in conducting the exercises of the meetings, and in presenting papers and discussions in a clear and forcible manner before an audience.

TUITION AND LABORATORY FEES. (See page 55).

BOARD AND ROOMS. (See page 57).

NEW YORK STATE VETERINARY COLLEGE.

VETERINARY COLLEGE COUNCIL.

For the purpose of making recommendations to the Board of Trustees in regard to the business administration of the New York State Veterinary College, there has been established a Veterinary College Council, consisting of the President of the University (who shall be *ex officio* chairman) ; one Trustee elected by the Board ; the Treasurer ; Director of the College ; and two Professors elected by the Faculty. The council at present is constituted as follows :

JACOB GOULD SCHURMAN, President of the University.
JAMES LAW, Director of the Veterinary College.
MYNDERSE VAN CLEEF, of the Board of Trustees.
EMMONS L. WILLIAMS, Treasurer of the University.
VERANUS A. MOORE, } of the Faculty.
GRANT S. HOPKINS.

CHARLES E. CORNELL, Secretary of the Council.

FACULTY.

JACOB GOULD SCHURMAN, D.Sc., LL.D., President.
JAMES LAW, F.R.C.V.S., Professor of Principles and Practice of Veterinary Medicine, Veterinary Sanitary Science and Parasitism.
SIMON HENRY GAGE, B.S., Professor of Microscopy, Histology and Embryology.
VERANUS ALVA MOORE, B.S., M.D., Professor of Comparative Pathology and Bacteriology, and of Meat Inspection.
WALTER L. WILLIAMS, V.S., Professor of Principles and Practice of Veterinary Surgery, Obstetrics, Zoötechny, and Jurisprudence.
PIERRE AUGUSTINE FISH, D.Sc., D.V.M., Professor of Veterinary Physiology, Pharmacology, and Therapeutics.
GRANT SHERMAN HOPKINS, D.Sc., D.V.M., Professor of Veterinary Anatomy and Anatomical Methods.
SAMUEL HOWARD BURNETT, M.S., D.V.M., Instructor in Comparative Pathology and Bacteriology.

GERSHOM FRANKLIN WHITE, B.S., Instructor in Bacteriology.
WALTER EDWARD KING, A.B., Assistant in Bacteriology.
CLAUDE H. CASE, D.V.M., Assistant in Clinical Surgery.
HOWARD J. MILKS, Assistant in Veterinary Physiology and *Materia Medica.*

MELANCTHON HAMILTON, Demonstrator in Anatomy.
RAY WILLARD GANNETT, Demonstrator in Anatomy.
CHARLES EZRA CORNELL, A.B., LL.B., Clerk of the College.
PHILENA B. FLETCHER, B.S.A., Librarian of the Roswell P. Flower Library.

HENRY HIRAM WING, M.S., Professor of Animal Husbandry.
LOUIS MONROE DENNIS, Ph.B., B.S., Professor of Inorganic Chemistry.

EMILE MONNIN CHAMOT, B.S., Ph.D., Assistant Professor of Sanitary Chemistry and Toxicology.

HENRY ROSE JESSEL, B.S., A.M., Ph.D., Instructor in Chemistry.
WILLIAM C. THRO, A.M., Instructor in Histology and Embryology.

— — — — —, Assistant in Histology and Embryology.

EFFIE ALBERTA READ, A.B., Assistant in Histology and Embryology.

SAMUEL G. WINTERS, A.B., A.M., Assistant in Histology and Embryology.

— — — — —, Assistant in Histology and Embryology.
JAY EMORY ROOT, A.B., Assistant in Chemistry.

THOMAS G. DELBRIDGE, A.B., Assistant in Chemistry.

CHARLES LYMAN RAND, Assistant in Chemistry.

WALTER SCHON LENK, B.S., Assistant in Chemistry.

FOUNDATION.

The New York State Veterinary College was established by an act of the Legislature of March 21, 1894, supplemented by acts of May 10, 1895, and March 4, 1896. By these acts the sum of \$150,000 was appropriated for buildings and equipment and provision made for maintenance. While a state institution, it is administered by the Trustees of Cornell University, and its students profit by courses of study in the University classes and laboratories, and by the University Library.

OBJECTS OF THE INSTITUTION.

The New York State Veterinary College was founded to raise the standard of veterinary instruction and investigation to the level of the most recent advances in biology and medicine. The number of farm animals in this State (9,450,000) and their value (\$131,200,000) with a yearly product in milk alone of over 5,000,000,000 gallons give some idea of the great interest at stake in the matter of live stock. For the United States a value in live stock of approximately \$3,200,-000,000 and a yearly sale in Chicago alone of over \$250,000,000 worth, bespeak the need of all that learning and skill can do for the fostering of this great industry. Another consideration is that the normal permanent fertilization of the soil is dependent upon the live stock kept, and that where there is a deficiency of animals, the productiveness of the land is steadily exhausted ; so that the health and improvement of animals and the fostering of animal industry, lie at the very foundation of our national wealth. Another, and no less potent argument, for the highest standard of veterinary education, is its influence upon the health of the human race. With a long list of communicable diseases, which are common to man and beast, and with the most fatal of all human maladies—tuberculosis—also the most prevalent affection in our farm herds in many districts, it is to the last degree important that measures for the extinction of such a contagion in our live stock should receive the best attention of the most highly trained experts.

To justify the liberality of the State in creating this seat of learning, it will be the aim of the College to thoroughly train a class of veterinarians for dealing with all diseases and defects that depreciate the value of our live stock, and with the causes which give rise to them ; to recognize and suppress animal plagues, which rob the stock owner of his profits and cause widespread ruin ; to protect our flocks and herds against pestilence of foreign origin, and to protect human health and life against diseases of animal origin. It will further aim, so far as it has the means and opportunity, at establishing a center of investigation, looking toward such improvements in the breeding, care and management of animals, as may enhance their market value and make returns more speedy and profitable ; toward discoveries in therapeutics, and the immunization of animals and men from contagion ; and toward the production of organic compounds to be employed in diagnosis, treatment and immunizing. So much has been recently discovered in these directions and present knowledge points so unmistakably to coming discovery, that to neglect this field at the present time would be decidedly reprehensible. Apart from discovery,

the mere production of reliable articles of these organic products which are coming into increasing demand by the State and the private practitioner, for prevention, diagnosis, and treatment, is an object not to be lightly set aside. The combination, in one institution, of educational facilities with scientific investigation, and the production of the organic extracts to be employed in modern medical methods, is a feature calculated to insure the best work in all departments, and the most exceptional advantages for the diligent student.

BUILDINGS.

The buildings of the State Veterinary College are seven in number, as follows :

The Main Building, 142 feet by 42 feet and three stories high, overlooks East Avenue and an intervening park 220 feet by 300 feet. The walls are of dull yellowish buff pressed brick, on a base of Gouverneur marble, window and door facings of Indiana limestone and terra cotta ornamentation. On the first floor are the museum and rooms of the director, clerk and professor of surgery. The second floor is devoted to the laboratories of physiology and pharmacology, a lecture room, reading room, library, and rooms for professors. The third floor is devoted to laboratories of pathology and bacteriology and the necessary subsidiary offices.

Connected with the main building and forming its east wing is a structure of 90 feet by 40, and one story high. This contains the laboratories and lecture room of anatomy, physiology, surgery, and medicine. Its floors are of impermeable cement, the walls lined by enamelled white brick, and the ceilings covered with sheet steel.

The second extension from the main building is the boiler and engine room, where power is generated for heating and ventilation.

The Surgical Operating Theatre is a separate building in the rear of the main building, and is furnished with room for instruments, water heater, etc. The lighting and equipment and the facilities for demonstration have received special attention.

The General Patients' Ward, 100 feet by 31, is furnished with box and other stalls, hearing apparatus, baths, and all necessary appliances. The floor is of impermeable cement, and the ceilings of painted sheet steel. There is also a fodder room of 20 by 30 feet.

The Isolation Ward, 54 feet by 15, has its stalls absolutely separated from one another, and each opening by its own outer door. It has an impermeable floor, with walls of vitrified brick, and painted sheet steel ceilings.

The Mortuary Building has impermeable floor, wall of enamelled

brick, and painted steel plate ceilings, and is fitted with every convenience for conducting post-mortem examinations and preparing pathological specimens.

Another building of 36 feet by 20 is devoted to clinical uses.

These, with a cottage for the stud groom, complete the list of State buildings erected for the Veterinary College. The equipment has been made as complete as possible for both educational uses and original research.

VETERINARY COLLEGE YEAR.

The Veterinary College year for 1904-1905 begins Friday, September 30, 1904, and closes Thursday, June 22, 1905, being divided into two terms, with one intermission of twelve days at Christmas, and one of ten days in the spring. Students must present themselves for registration in the days fixed for that purpose.

ENTRANCE EXAMINATION.

[*All inquiries should be addressed to the Director of the State Veterinary College, Ithaca, N. Y.*]

Candidates for admission to the State Veterinary College, except those specified below must pass satisfactory examinations in the following subjects :

1. English. 2. American History and Civil Government. 3. Plane Geometry. 4. Algebra, as much as is contained in the larger American and English text-books, and any three of the following :

5. Elementary French. 6. Elementary German. 7. Latin Grammar and Cæsar. 8. Vergil, Cicero, and Latin Composition. 9. Entrance Greek. 10. An amount of any group of the following, making the equivalent of two years of high school work : Physics, Botany, Geology, Vertebrate Zoology, Invertebrate Zoology, Advanced French, Advanced German.

For details as to subjects and methods of admission, see pp. 33-53.

ADMISSION ON "REGENTS' VETERINARY STUDENTS CERTIFICATE."

Students are admitted without further examination on the Regents' *Veterinary Student Certificate*.

Full information may be obtained by addressing "Examination Department, University of the State of New York, Albany."

ADMISSION TO ADVANCED STANDING.

Admission to Advanced Standing.—Applicants for admission to advanced standing as members of the 2d or 3d year class must present the necessary educational qualifications for admission to the first year class (see p. 310), and must pass a satisfactory examination in all the work gone over, or offer satisfactory certificates of the completion of such work in other schools whose entrance requirements and courses of study are equivalent to those of this college. No person will be admitted to any advanced class except at the beginning of the college year in September.

Applicants for advanced standing from other colleges must send or present letters of honorable dismissal, and furnish the Director, Dr. James Law, with a catalog containing the courses of instruction in the institution from which they come with a duly certified statement of the studies pursued and their proficiency therein, and also a statement of the entrance requirements with the rank gained. To avoid delay these credentials should be forwarded at an early date in order that the status of applicants may be determined and information furnished concerning the class to which they are likely to be admitted.

Graduates of veterinary colleges whose requirements for graduation are not equal to those of the New York State Veterinary College may be admitted provisionally upon such terms as the faculty may deem equitable in such case, regard being had to the applicant's previous course of study and attainments. In this connection, attention is called to the legal requirements of academic and professional education for the practice of Veterinary Medicine in the State of New York.

Admission to Advanced and Special Work.—The ample facilities for advanced and special work in the New York State Veterinary College, with allied departments in Cornell University, are open to graduates of this institution and of other colleges whose entrance requirements and undergraduate courses are equivalent.

COURSES IN VETERINARY MEDICINE.

With the view of raising the standard of veterinary instruction, it is intended to establish a graded course extending over four years, as in the various departments of Cornell University, and in the best veterinary schools abroad. As a step toward this a three year course has been laid out. This is a decided advance upon any Veterinary College in America, as the majority of even the three year schools give only five months' instruction per year, amounting to but fifteen months in all; while with an academic year of nine months, the New York State Veterinary College furnishes a total instruction period of twenty-seven months. Add to this that the Veterinary Practice Statute, prescribing

two years of successful high school work as the condition of entering on veterinary studies in 1896, and four years of high school work for admission in 1905, adds more than an additional year to anything demanded on the part of American Veterinary schools, and insures that a student with a mind already trained to mental processes, will acquire much more in the same length of time than the untrained mind can possibly do.

THE HORACE K. WHITE PRIZES.

These prizes established by Horace K. White, Esq., of Syracuse, are awarded annually to the most meritorious students in the graduating class of the college. One prize of \$15 to the first in merit; to the second in merit, a prize of \$10.

THE COURSE LEADING TO THE DEGREE OF DOCTOR OF VETERINARY MEDICINE.

	No. Course.	1st Term.	2d Term.
Inorganic Chemistry	I	6	-
Microscopy, Histology and Embryology	I	-	8
Anatomy	10	8	5
Comparative Physiology Recitations	20	2	-
" " Lectures	21	-	3
" " Laboratory	22	-	2
Animal Husbandry	36	3	-
Second Year.	No. Course.	1st Term.	2d Term.
Anatomy	II	10	-
Comparative Physiology Recitations	20A	-	1
Pharmacology	25	2	-
Materia Medica and Pharmacy	26	2	-
General Surgery	30	1½	-
Surgical Exercises	31	¾	-
Obstetrics and Zootechnics	36	-	4
Medical and Surgical Clinics	34-53	-	6
General Pathology	40	4	-
Bacteriology	43	-	6
Medicine	50	3	3
Sanitary Science or Parasitism	51 or 52	2	2
Third Year.	No. Course.	1st Term.	2d Term.
Urine Analysis	23	1½	1
Diagnosis and Therapeutics	27	2	-
Materia Medica Recitations	28	-	2
Surgical Exercises	31	¾	-
Surgery (Head, etc.)	32	2	-
Surgery (Limbs, etc.)	33	-	4
Jurisprudence	35	¾	-
Medical and Surgical Clinics	34-53	12	12
Infectious Diseases and Meat Inspection	41	2	-
Medicine	50	3	3
Parasitism or Sanitary Science	52 or 51	2	2
Toxicology	67	-	1½
Research and Thesis	—	3	3

Microscopy, Histology and Embryology.

i. Microscopy, Histology and Embryology. Second half-year. Credit 8 University hours. The exercises each week are as follows: Laboratory work M. and W., 9-12; Th., F., 2-5. Demonstration—Lectures, W. and F. 5; recitations, Th. and S., at 8. Professor GAGE, Instructor THRO and Assistants READ, WINTER, and

Microscopy.—The aim is to give a working knowledge of the theory and use of the microscope and its accessories, methods of mounting microscopical specimens, etc. It serves as a basis for all the subsequent work of the department. The work begins with the second term and continues two weeks.

Histology.—This includes the study of the fine anatomy of the domestic animals and of man, and also the fundamental methods of histologic investigation and demonstration. This work continues seven weeks.

Embryology.—This deals with the elements and methods of embryology in the amphibia, in the domestic animals, especially the chick and the pig, and in man. The instruction in Embryology continues seven weeks.

For the advanced courses see pp. 193-194. The advanced courses are open to Veterinary as to other properly qualified students.

Anatomy.

10. Comparative Osteology. Three hours. First term. Two lectures, T., Th., 9. From September to February there will be five periods of laboratory work. M., W., Th., F., P. M., S., A. M. From February to June there will be three periods, M., T., P. M.; S., A. M. Professor HOPKINS and Demonstrators.

11. Arthrology and Myology. Five hours. First term. This course immediately follows course 10. Lectures and laboratory work the same as in course 10. Professor HOPKINS and Demonstrators.

12. Myology, Thoracic and Abdominal Viscera. Five hours. Second term. Lectures, T., Th., 9. One weekly recitation. Laboratory work, M., T., P. M.; S., A. M. Professor HOPKINS and Demonstrators.

13. The Vascular System. Four hours. First term. Lecture, F., 9. One weekly recitation. Laboratory work, 20 hours, or more, per week. M., T., Th., F., P. M.; S., A. M. Professor HOPKINS and Demonstrators.

14. The Nervous System and Organs of Special Sense. Six hours. First term. Lecture, recitation and laboratory work the same as in course 13. Professor HOPKINS and Demonstrators.

15. **Research and Thesis or Special Regional Anatomy.** Seven and one-half hours weekly throughout the year. Professor HOPKINS.

Comparative Physiology.

20. **Physiology Recitations.** Two hours weekly. First term. Two sections. Section I, M., 9, T., 10. Section II, T., 11, W., 10. Professor FISH and Assistant MILKS.

20a. **Physiology Recitations.** One hour weekly. Second term. Two sections, S., 10, 11. Professor FISH and Assistant MILKS.

21. **Physiology Lectures.** Three hours weekly. Second term. T., Th., F., 10. Professor FISH.

22. **Physiological Laboratory.** A portion of the course is devoted to chemical physiology. Artificial digestive juices are tested upon the various kinds of foodstuffs by the students and careful notes kept of the various changes. Milk, Bile and Blood are also studied, including a spectroscopic examination of the latter. A large proportion of the work is devoted to a study of the phenomena associated with the circulatory, respiratory, muscular and nervous systems. Students are to obtain and preserve graphic records of these phenomena, whenever possible. Certain experiments requiring special apparatus and care are performed by the instructors as demonstrations, students assisting when possible. Five hours each week. Second term. Sec. I, T., 11-1; W., 2-5. Sec. II, Th., 11-1; F., 8-10, 11-12. Professor FISH and Assistant MILKS.

23. **Course in Urine Analysis.** Laboratory work devoted to the comparative study of urine. Examinations are made of human urine and that of the domestic animals, especially the horse. In addition to the chemical examination, some time will be devoted to a microscopic study of urinary deposits. So far as possible each student is expected to prepare and preserve a series of "typical slides." Five hours weekly. First term. W. 10-1, S. 11-1. September to December. Professor FISH and Assistant MILKS.

24. **Research and Thesis.** Seven and one-half hours per week throughout the year. This course includes advanced work, independent of the thesis and reports of progress are given at the department seminary every fortnight. Professor FISH and Assistant MILKS.

Pharmacology.

25. **Pharmacology.** A study of the actions and uses of the various drugs and their preparation. A varied collection of the crude drugs and their official preparations is available and examined at the lectures. The course is conducted in the form of lectures with

short weekly examinations. First term. Th., F., 10. Professor FISH.

26. Materia Medica and Pharmacy Laboratory. The work in this course consists of the study of a selected group of inorganic drugs; the study of certain crude organic drugs and their official preparations; in making pharmaceutical preparations, such as syrups, emulsions, spirits, liniments, tinctures, fluid extracts, extracts, ointments, pills, and others. Some exercises will also be devoted to the study of the direct physiological action of a few selected drugs upon some of the lower animals.

In their study the students are required to write concise notes of the physiological action of the drugs examined and to make tests of their incompatibility. In addition to this each student will have practical experience in writing and compounding prescriptions. The importance of a discriminating and accurate system for dispensing medicines is thoroughly emphasized. Five hours each week. First term. Sec. I, W., 2-5, Th., 11-1. Sec. II, M., 10-1, T., 10-1. Professor FISH and Assistant MILKS.

27. Clinical Diagnosis and Therapeutics. Two recitations per week in Diagnosis for the first half of the first term. S., M., 10. Professor FISH. The recitations will be supplemented by practical experience in the medical clinics.

Therapeutics. The treatment and cure of disease. This subject, standing along with pathology, unites physiology, anatomy, chemistry and botany with medicine and surgery. It is therefore necessary to have some knowledge of these branches in order to obtain a full appreciation of the means employed in the restoration of health.

This course must be preceded by the first and second years course in physiology and pharmacology, or their equivalents. Two lectures each week. Second half of the first term. S. and M., 10. Professor FISH.

28. Recitations in Materia Medica. Second term. M., W., 10. Professor FISH.

29. Research and Thesis. Seven and one-half hours weekly throughout the year. This course includes advanced work independent of the thesis and reports of progress are given at the department seminary every fortnight. Professor FISH and Assistant MILKS.

Surgery.

30. General Surgery. Two lectures per week, September 25, to December 23, W., 9, F., 11. Professor W. L. WILLIAMS.

For admission to this course, students must have passed courses 10, 11 and 12 in Anatomy, course 21 in Physiology, and course 1 in Histology and Embryology.

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31. **Surgical Exercises.** Three hours per week of laboratory work from September 25 to December 23. (2d year, Sec. I), W., 10 to 1. (2d year, Sec. II), Jan., W., 10-1; Feb.-Mar., T., 10-1. (3d year), F., 9-12. Professor W. L. WILLIAMS and Dr. CASE.

Requirements for admission as in course 30.

This course is given each year, and is pursued by second and third year students, that is, each student takes the course twice.

32. **Surgery of the Head, Neck and Chest.** Two lectures or recitations per week. First term, M., T., II. Professor W. L. WILLIAMS.

For admission students must have passed courses 30 and 31.

33. **Surgery of the Limbs, Skin, Abdominal Organs, Genito-Urinary System and Castration.** Four lectures or recitations weekly. Second term, M., W., Th., F., II. Professor W. L. WILLIAMS.

The requirements for admission is the same as for course 32. This course will be given to second and third year students in 1905 and 1906. See course 36 with which it alternates.

34. **Surgical Clinics.** Twelve actual hours or more per week throughout the year. M., T., W., Th., F., S., 2-4 P. M. Professor W. L. WILLIAMS and Dr. CASE.

For second year students attendance is required during the second term, for third year students attendance is required throughout the year.

For admission students must have passed courses 30 and 31. The time given above includes the medical clinics, conducted by Professor LAW. See course 53, under medicine.

35. **Jurisprudence.** Two lectures per week during the month of January. W., Th., II. Professor W. L. WILLIAMS.

36. **Obstetrics and Zootechnics.** Four lectures or recitations per week, second term. M., W., Th., F., II. Professor W. L. WILLIAMS.

For admission students must have passed courses 30 and 31.

Thus course alternates with course 33. It will be given to second and third year students in 1904-5.

37. **Research and Thesis.** Seven and one-half hours weekly throughout the year. Professor W. L. WILLIAMS and Dr. CASE.

Comparative Pathology, Bacteriology and Meat Inspection.

40. **General Pathology.** First term. This course is open to students who have had Normal Histology and at least one year's work in Anatomy and Physiology. Two recitations and six hours laboratory work each week. Recitations M. and T., 9. Lab. M. and T., 10-1, Professor MOORE, and Instructor BURNETT.

41. Pathology of Infectious Diseases and Meat Inspection. First term. Open to students who have taken Course 40, and have taken or are taking Course 43. Two hours. Lectures W. and Th. 9, Professor MOORE.

42. Experimental Pathology. This course is optional. It consists in laboratory work designed especially for aiding the students in the diagnosis of infectious diseases. It is open to students who have taken courses 40 and 43, and have taken or are taking Course 41 Professor MOORE and Instructor BURNETT.

43. Bacteriology. Second term. This course is open to students, who have had, or are taking Course 1 in Microscopy. Two lectures and ten hours laboratory work each week. Lectures M. and T., 9. Lab. work T., W., F. and S. Professor MOORE, Instructor WHITE and Assistant KING.

44. Research in Bacteriology. Laboratory work throughout the year. Professor MOORE and Instructor WHITE.

The course is designed for those preparing theses for the baccalaureate or advanced degrees and for those wishing to undertake original investigation in Bacteriology. This course is open to students who have taken Course 43, or its equivalent in some other university. Elementary Chemistry and a reading knowledge of French and German are indispensable for successful work in this course.

45. Research in Pathology. Laboratory work throughout the year. This course is open to students who have taken Course 40 and have taken or are taking Course 43, or the equivalent in some other university. Professor MOORE and Instructor BURNETT.

46. Clinical Examination of the Blood. Second term. Lectures and Laboratory work. Two hours. Open to students who have taken Course 40. Instructor BURNETT.

Veterinary Medicine; Zymotic Diseases, Veterinary Sanitary Science; Parasites and Parasitism.

50. Veterinary Medicine, Principles and Practice. Three lectures or recitations per week throughout two years. M., W., F., 8. Professor LAW.

51. Contagious Diseases: Veterinary Sanitary Science. Two lectures or recitations per week throughout the year. T., Th., 8. Professor LAW.

[This course will be given to second and third year students in 1904-1905. See course 52.]

52. Parasites and Parasitism. Two lectures or recitations per week throughout the year. T., Th., 8. Professor LAW.

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Course 52 alternates with 51. It will be given to second and third year students in 1905-1906.

53. Clinical Veterinary Medicine. Twelve actual hours or more per week throughout the year. M., T., W., Th., F., S., 2-4 P.M. Professors LAW and FISH.

For second year students attendance is required during the second term, for third year students attendance is required throughout the year.

The clinical work in Medicine and in Surgery is combined. For the amount of time required see under Surgery, Course 34.

54. Research and Thesis. Seven and one-half hours weekly throughout the year. Professor LAW.

COLLEGE OF AGRICULTURE.

THE AGRICULTURAL COLLEGE AND STATION COUNCIL.

JACOB GOULD SCHURMAN, President of the University.
FRANKLIN C. CORNELL, Trustee of the University.
LIBERTY H. BAILEY, Director of the College.
EMMONS L. WILLIAMS, Treasurer of the University.
JOHN HENRY COMSTOCK, Professor of Entomology.
THOMAS F. HUNT, Professor of Agronomy.

FACULTY.

JACOB GOULD SCHURMAN, A.M., D.Sc., LL.D., President of the University.
LIBERTY HYDE BAILEY, Director of the College of Agriculture, Dean of the Faculty, and Professor of Rural Economy.
GEORGE CHAPMAN CALDWELL, B.S., Ph.D., Professor of Chemistry, Emeritus.
ISAAC PHILLIPS ROBERTS, M.Agr., Professor of Agriculture, Emeritus.
JOHN HENRY COMSTOCK, B.S., Professor of Entomology and General Invertebrate Zoology.
HENRY HIRAM WING, M.S. in Agr., Professor of Animal Husbandry.
JOHN CRAIG, M.S. in Agr., Professor of Horticulture.
THOMAS FORSYTH HUNT, M.S., D.Agr., Professor of Agronomy and Manager of the University Farm.
RAYMOND ALLEN PEARSON, M.S. in Agr., Professor of Dairy Industry.
JAY ALLEN BONSTEEL, Ph.D., Professor of Soil Investigation (detailed from Bureau of Soils, United States Department of Agriculture).
MARK VERNON SLINGERLAND, B.S. in Agr., Assistant Professor of Economic Entomology.
GEORGE WALTER CAVANAUGH, B.S., Assistant Professor of Chemistry in its relations with Agriculture.
JOHN LEMUEL STONE, B.Agr., Assistant Professor of Agronomy.
STEVENSON WHITCOMB FLETCHER, Ph.D., Assistant Professor of Extension Teaching in Agriculture.

JAMES EDWARD RICE, B.S. in Agr., Assistant Professor of Poultry Husbandry.

GEORGE NIEMAN LAUMAN, B.S.A., Instructor in Rural Economy and Secretary to the Faculty of the College of Agriculture.

ALEXANDER DYER MACGILLIVRAY, Ph.D., Instructor in Entomology.

WILLIAM ALBERT RILEY, Ph.D., Instructor in Entomology.

JOHN WASHINGTON GILMORE, B.S.A., Instructor in Agronomy and Superintendant of the Farms.

ROBERT S. NORTHOP, B.S., Instructor in Horticulture.

Other Officers of Instruction and Administration.

HUGH CHARLES TROY, B.S. in Agr., Assistant in Dairy Laboratory.

WALTER WAGER HALL, Assistant in Cheese-Making.

WEBSTER EVERETT GRIFFITH, Assistant in Butter-Making.

JOHN WALTON SPENCER, Supervisor in Extension Department,

ANNA BOTSFORD COMSTOCK, B.S., Lecturer in Nature Study.

ALICE GERTRUDE McCLOSKEY, Assistant in Extension Department.

MARTHA VAN RENSSELAER, Supervisor Farmers' Wives' Reading Course.

HERBERT HICE WHETZEL, A.B., Assistant in Plant Pathology in the Extension Department.

SAMUEL FRASER, Assistant Agronomist.

JAMES ADRIAN BIZZELL, Ph.D., Assistant Chemist to the Experiment Station.

JOHN MAIN TRUEMAN, B.S. in Agr., Assistant in Animal Husbandry and Dairy Industry.

WARREN H. MANNING, Lecturer in Outdoor Art.

BRYANT FLEMING, B.S.A., Lecturer in Outdoor Art.

G. ARTHUR BELL, A. F. A. SCHOLTZHAUER, W. F. BURLINGAME, Assistants in Winter Dairy-School for 1904.

GEORGE WALTER TAILBY, Farm Foreman.

CHARLES EDWARD HUNN, Gardener.

CLARENCE AUGUSTINE MARTIN, Assistant Professor of Architecture (giving instruction in Farm Home Course).

HENRY NEELY OGDEN, C.E., Assistant Professor in Civil Engineering (giving instruction in Farm Home Course.)

ROBERT G. ALLEN, Section Director Weather Bureau (giving instruction in Agricultural Meteorology).

The College of Agriculture is founded on the Land Grant Act of 1862, whereby Congress appropriated the proceeds of the sales of certain lands to the maintenance of a college in each State to give instruction in agriculture and the mechanic arts. This grant marks an epoch in the history of education, because it provides for a system of education that shall have direct and definite relations with the daily work of persons who must earn their own living in the arts and industries. The College of Agriculture, therefore, seeks to interest the farm boy and the farm girl in the very things with which they live day by day,—the soil, the weather, the plant, the animal, the farm home, the school, and all the customary rural affairs. It seeks both to give them power to make the most of the farm, and to inspire contentment with the daily life. The aim of the College, in other words, is to elevate the ideals of country living. This it attempts to do in three general ways; by giving instruction to those who come to the University for two years or more; by giving instruction by means of correspondence and other extension methods to those persons, young or old, who cannot come to the University or who can come but for a very limited time; by experimenting for the discovery of new truth in agricultural fields.

The College is provided with land, stock, orchards, gardens, libraries, and other equipments. The farm comprises nearly 275 acres. The buildings comprise a dairy, two barns, poultry quarters and forcing-houses. There are herds of cattle, sheep and swine, flocks of poultry, various farm horses. In the horticultural department is a good collection of fruit trees in orchards, and many kinds of specimen plants. Farm machinery and implements are also represented. The library facilities are ample, comprising a very large collection of rural books in the general university library, a practically complete series of Experimental Station publications in the Director's office, and small reference libraries in the Dairy Building and in the rooms of the Horticulturists' Lazy Club.

Students entering the College of Agriculture are on an equal footing with students in any other college or department. They become a part of the general student body. They are under the special supervision of the Director of the College. Two special societies or clubs are organized and maintained by the students in the College of Agriculture—the Agricultural Association meeting every Tuesday night, and the Horticulturists' Lazy Club, meeting every Monday night. In addition to these, the Winter-course students maintain an organization of their own. Recently there has been organized an "Agricultural Experimenters' League," to which all students are eligible, and

which is designed for the furthering of experimental investigation and of arousing closer friendship amongst the farmers of the State.

Tuition is free in the College of Agriculture.

Some of the details of the permanent equipment are as follows :

1. *Agronomy and Animal Husbandry*.—A four-story barn provides for housing the animals, machinery, tools, hay, grain and manures. The stationary thresher, feed-cutter, chaffer and other machinery are driven by steam power. The barn also furnishes many facilities for carrying on investigations in feeding and rearing all classes of domestic animals. The barn is also furnished with a piggery and tool house. Not far from the main barn have been constructed several buildings, with suitable yards and appliances for incubating eggs and rearing domestic fowls, and also a comfortable heated building in which the judging of stock is done. There are also buildings on the remoter parts of the farm. The College also has a good equipment of apparatus for soil physics work.

The agricultural rooms are provided with a collection of grains and grasses, implements of horse and hand culture, and various appliances for carrying on instruction and conducting investigation.

2. *Dairy Industry*.—The dairy building, a two-story stone structure 45 x 90 feet, was built and equipped from an appropriation of \$50,000 by the Legislature of 1893. It contains lecture rooms, laboratories, and offices, besides two large rooms for butter and cheese making, both of which are equipped with modern machinery and appliances. Automatic electrical apparatus controls the temperature in the cheese-curing rooms. Refrigerator room, lockers and bath rooms are also provided. The whole building is thoroughly heated and ventilated. Power is furnished by a sixty horse-power boiler and a twenty-five horse-power Westinghouse engine.

3. *Horticultural Department*.—The equipment comprises about ten acres of land variously planted, forcing-houses and a barn.

The gardens and orchards contain the fruits which thrive in the north in considerable variety, and in sufficient quantity to illustrate methods of cultivation. Nursery grounds are also attached, in which are growing many species of economic plants. The fruits comprise varieties of grapes, apples, plums, and other kinds. A dwarf pear orchard of 300 trees, and other orchards, comprise the remainder of the field space, excepting such as is set aside for vegetable gardening and floriculture.

The forcing-houses are five in number and cover nearly 6,000 square feet of ground. These, in connection with store-rooms and pits, afford opportunities for nursery practice, for the study of

the forcing of vegetables and for some kinds of floriculture. A laboratory with space for forty students, is used for instruction in propagation of plants, pollination, and the commoner greenhouse operations. There is also a mushroom house 14 x 80 feet and a reading room for horticultural students.

The museum comprises two main features—the garden herbarium and the collection of photographs. The herbarium, containing at present over 12,000 sheets, is designed to comprise varieties of all cultivated species of plants, and it is an indispensable aid to the study of garden botany and the variation of plants. The collection of photographs comprises over 6,000 negatives with prints representing fruits, flowers, vegetables, illustrative landscapes, glass houses, and horticultural operations. A collection of machinery and devices for the spraying of plants is at the disposal of students. Charts and specimens in considerable variety complete the museum and collection.

The University library has files of many of the important horticultural and botanical periodicals and a good collection of general horticultural literature.

4. *Entomological Department.*—The entomological cabinet contains, in addition to many exotic insects, specimens of a large part of the more common species of the United States. These have been determined by specialists, and are accessible for comparison. The collection includes many sets of specimens illustrative of the metamorphoses and habits of insects. The laboratory is also supplied with a large collection of duplicates for the use of students and is equipped with microscopes and other apparatus necessary for practical work in entomology.

The insectary of the Agricultural Experiment Station affords facilities to a limited number of advanced students for special investigations in the study of the life history of insects, and for experiments in applied entomology.

5. *Chemical Department.*—This Department is housed in a three-story brick building 126 feet in length and of an average width of 60 feet. The Department is liberally equipped with varied appliances necessary to give instruction to several hundred students in General and Agricultural Chemistry.

6. *The Agricultural Library* contains files of bulletins and reports from experiment stations of the United States and Canada; it has also a file of the publications of the U. S. Department of Agriculture. The leading works on agriculture are on the shelves. The exchange list includes the principal agricultural periodicals published in this country.

By act of the Legislature, approved by the Governor May 9, 1904, an appropriation was made of \$250,000 for the erecting and equipping of buildings for the College of Agriculture. The act also establishes the College as "The New York State College of Agriculture at Cornell University." The plans for the buildings and for the reorganization of the College are not ready for announcement at this time.

The regular instruction in the College of Agriculture is comprised in a four-year course leading to the degree of Bachelor of the Science of Agriculture. Aside from this there are special two-year courses and short winter-courses, the latter not leading to credits in the University. Students may also pursue agricultural subjects in the Graduate Department of the University, leading to the degrees M.S. in Agr. and Ph.D.

Aside from the regular instructional work, outlined in these pages, the College of Agriculture also comprises an Experiment Station maintained by funds derived from the federal government and an Extension Department maintained by the State. The Extension Department comprises the nature-study work, farmers' reading courses, winter-courses, coöperative experiments about the State, and other enterprises. A special circular gives details of this organization.

Admission to four-year course.

Candidates for admission to the regular or four-year course must be at least sixteen years of age, or, if women, seventeen. They must have certificates of good moral character, and students from other colleges or universities are required to furnish from those institutions certificates of honorable dismissal. Students are admitted on examination, or on presenting credentials of the Regents of the University of the State of New York, or on acceptable school certificates.

Candidates for admission must file their credentials and obtain permits for examination at the Registrar's office. The results of examinations may be ascertained from the Registrar.

The following subjects are required for admission : English, History [the student must offer one of the four following divisions in history (a) American, including Civil Government, (b) English, (c) Ancient, to 814 A.D., (d) Mediæval and Modern European, from 814 A.D.]. Plane Geometry, Elementary Algebra, and either A, B, or C, as below.

- A. Greek and Latin.
- B. Latin and either Advanced French or Advanced German.
- C. Advanced French, Advanced German, and Advanced Mathematics.

An equivalent of any one of the three groups, A, B, and C, may be offered, provided five counts are offered. Latin counts 3, Greek, French and German, 2 each. Advanced Mathematics (Solid Geometry, Advanced Algebra, Plane and Spherical Trigonometry) counts 1, provided, however, that the student before graduation must have passed in one modern language if it was not offered for entrance.

An alternate requirement instead of Advanced Mathematics may be offered in Physics, Chemistry, Botany, Geology or Zoology.

For other details as to subjects and methods of admission, see pages 33-54.

For admission to the Freshman class and to advanced standing from other colleges and universities, all communications should be addressed to the Registrar. See pages 33-54.

For admission as special student communications should be addressed to the Director of the College of Agriculture and attention is called to the paragraphs under II below.

For admission to graduate work and candidacy for advanced degrees, communications should be addressed to the Dean of the University Faculty. See page 70.

II. SPECIAL COURSES (TWO YEARS).

Two Special Courses have been arranged for the benefit of those who are unable to take the full four years' course. Students must be at least eighteen years of age to enter the Special Courses. They are entered by the Director of the College of Agriculture without examination. They must satisfy the Director that they are well enough grounded in the secondary school subjects to enable them to pursue the work with credit to themselves and with honor to the University, and also that they desire to take the work because of direct interest in agricultural affairs. They must present an honorable dismissal from the school last attended and certificates of good moral character. When they come from secondary schools in which they have not completed the course, they must present a letter of recommendation from the principal in regard to their taking the Special Course in Agriculture. Special students are obliged to choose two-thirds of their work in each term from the "agricultural electives." The Special Courses are as follows:

1. *The General Agriculture Special Course.*—This is not a definite "course" in the sense of having a prescribed set of studies. The student chooses any of the "agricultural electives" that he may be able to pursue. The Director of the College of Agriculture admits

the student as a Special ; but this does not admit him to classes. He is admitted to the various classes by the heads of the departments when he has satisfied the heads of the departments that he is able to pursue the work. The Agricultural Special Course is designed particularly to meet the needs of young men and young women from the farm who desire to fit themselves for farm life but who have not had the school advantages to enable them to prepare for regular university entrance or who have not the time to give to a four years' course.

2. *Nature-Study Special Course*.—This course is open to teachers, or to such students in the University as signify their intention to teach, who desire to prepare themselves in nature-study and country-life subjects. In this course the work is largely prescribed. The course comprises two categories of work ; the subject-matter studies, and the pedagogical practice. The subject-matter is to be secured in the regular classes of the University, largely in the biological departments. The pedagogical practice is to be had with children in regular nature-study classes and clubs in the public schools of Ithaca and in school-garden work with children.

III. EXTENSION WORK.

The extension work of the College of Agriculture is designed to help persons directly on their farms, and to aid those who desire definite instruction but cannot take a long or regular course in agriculture in the University. It supplements the teaching and experimenting of the College of Agriculture. It is maintained by funds appropriated by the State. It is professedly a popular work. It endeavors to reach the common problems of the people, to quicken the agricultural occupations, and to inspire a greater interest in country life. It is also a bureau of publicity, whereby there is an exchange of all important matters connected with the progress of the agriculture of the State. This Extension enterprise is conducted under the general supervision of the State Commissioner of Agriculture.

The Extension department comprises many efforts, the leading ones being :

- (a) Experimenting and testing about the State and at Ithaca, for the purpose, primarily, of aiding the farmer in handling his own problems.
- (b) The Farmers' Reading-Course ; the Farmers' Wives' Reading-Course.
- (c) The Nature-Study work, comprising the junior gardeners, junior naturalists, work in connection with county and local fairs, improvement of school premises, home nature-study

course, lectures and demonstrations in schools and at teachers' meetings.

- (d) Coöperation with schools in introducing agricultural and country life topics.
- (e) Winter-courses of eleven weeks at Cornell University in General Agriculture, Poultry Husbandry, Dairy Industry.

Several reports of the Extension work have been published as bulletins. These may be had on application until the supply is exhausted. Applications to join any of these extension enterprises may be made to the Director of the College of Agriculture.

IV. AGRICULTURAL EXPERIMENT STATION.

The Agricultural Experiment Station of Cornell University is a Department of the College of Agriculture. Incidentally, students may acquire instruction from observing and discussing the experiments which are being conducted. The federal law passed March 2, 1887, briefly outlines the objects of the experiment stations in the following words : "To aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science." . . . It further provides "That bulletins or reports of progress shall be published at said station at least once in three months, one copy of which shall be sent to each newspaper in the states or territories in which they are respectively located, and to such individuals actually engaged in farming as may request the same and as far as the means of the station will permit." The entire plant of the College of Agriculture is used, as occasion demands, for conducting experiments in animal and plant growth and reproduction, and in applied, comparative and scientific research and investigations. The Cornell University Agricultural Experiment Station was first organized in 1879. It was reorganized in 1888, after the passage of the federal law.

The publications of the Agricultural Experiment Station include to date sixteen annual reports and two hundred and twenty bulletins. These publications are distributed free to such residents of the State as apply for them so far as the means of the station will permit.

State Grange Scholarships in Agriculture. At its 31st annual meeting, held at Cortland, February 4, 1904, the New York State Grange resolved to "appropriate annually \$200 to be given to members of the Order in the form of four scholarships to any of the agri-

cultural courses in Cornell University." The scholarships are each of a value of \$50, to be awarded to two men and two women who attain the highest standing on competitive examination. The candidate should apply to the Master of the Pomona Grange in his home county, or to the Deputy in counties that have no Pomona.

The W. C. Hunt Prize for excellence in stock-judging. Mr. W. C. Hunt of Liverpool, N. Y., breeder of Holstein-Friesian cattle, offers to the student showing the greatest proficiency in judging dairy cows a prize of \$10.00 and to the second best student a prize of \$5.00. The competition is open to any member of the classes in Animal Husbandry in the year 1904-5 and the competition is to take place at the stables of the owner some time between March 15th and April 1st, 1905.

There is a limited amount of work on the farms, that will be given to students that apply for it. Those desiring work should write early to Professor T. F. Hunt, who will furnish application blanks.

Tuition.

Tuition is free to regular and special students in the College of Agriculture, and also to Winter-course students residing in New York State.

Winter-course students from outside the state pay a tuition for the term of eleven weeks of \$25.00.

COURSES OF INSTRUCTION.

The Regular Four-Year Course in Agriculture Leading to the Degree of Bachelor of the Science of Agriculture.

The work is prescribed and elective. The prescribed work is as follows :

Freshman Year.	No. Course.	Hours.	
		1st Term.	2d Term.
English -----	I -----	3 -----	3 -----
Drawing -----	D -----	2 -----	2 -----
Botany -----	I, 2 -----	3 -----	3 -----
Geology -----	2 -----	3 -----	3 -----
Invertebrate Zoology -----	I -----	2 -----	- -----
Entomology -----	3 -----	- -----	3 -----
Vertebrate Zoology -----	2 -----	2 -----	- -----

In addition to the above, the required drill credit, 2 hours each term, and gymnasium credit, 1 hour each day must be taken.

Sophomore Year.	No. Course.	Hours.	Hours.
		1st Term.	2d Term.
English -----	2 -----	3 -----	3
Physics -----	2a -----	2 -----	2
Chemistry -----	I, 81 -----	6 -----	6
Physiology of Domestic Animals -----	2I -----	- -----	3
Soils -----	I -----	3 -----	-

Junior Year.	No. Course.	Hours.	Hours.
		1st Term.	2d Term.
Political Economy -----	5I -----	3 -----	3
Agronomy -----	II, 12 -----	4 -----	4

The elective work may be chosen from the courses described on the following pages. At least one-half of the entire elective work of each year must be chosen from these agricultural subjects.

Special students (admitted without examination, by the Director of the College of Agriculture) follow no prescribed course; but at least two-thirds of all their work must be in the agricultural subjects described on the following pages. They are obliged to follow the same regulations as the regular students in not entering any particular work until they have satisfied all previous requirements for that work.

Courses in Other Colleges Allowed as Agricultural Electives.

Botany, 6 (Exotics); New York State Veterinary College, 51 and 52 (Contagious Diseases, Parasites); Geology 33 (Origin and Nature of Soils).

Thesis.

The student may elect a thesis with the heads of any of the departments in the College of Agriculture. The thesis work must continue for at least one year. It counts a credit of two hours for each term.

A. Entomology and General Invertebrate Zoology.

1. **Invertebrate Zoology.** General course. First half of the first half-year. Credit, 2 hours. M., W., F., 10, *White* 12. Professor Comstock; and one practical exercise by the class in sections. 1st section, W., 2-4:30; 2nd section, F., 2-4:30, *White* 20. *Messara, MacGillivray, Riley and Betten.*

This course is followed by course 2 in Vertebrate Zoology, which occupies the corresponding hours in the last half of the first half-year.

2. **Morphology of Invertebrates.** Special laboratory course. M., 8-5, Th., 8-1, *White* 20. Mr. *MacGillivray.*

3. **General Entomology.** Lectures on the characteristics of the orders, sub-orders, and the more important families and on the habits of representative species. Second half-year. Credit 2 hours or 3 hours. M., W., 10, *White 12*. Professor COMSTOCK; and one practical exercise in sections for those who have not had courses 4 and 5. W., F., 2-4:30, *White 20*. Messrs. MACGILLIVRAY, RILEY and BRETTEN.

Course 3 is open only to students who have taken course 1.

4. **Elementary Morphology of Insects.** Laboratory work. First half-year. Credit, 3 hours. M., T., 8-5, W., Th., F., 8-1, *White 20*. Messrs. MACGILLIVRAY and RILEY.

5. **Elementary Systematic Entomology.** Laboratory work. Credit, 2 hours. M., T., 8-5, W., Th., F., 8-1, *White 20*. Messrs. MACGILLIVRAY and RILEY.

Course 5 is open only to students who have taken course 4, and are taking or have taken course 3.

6. **Advanced Systematic Entomology.** Laboratory work. Credit, 3 hours. M., T., 8-5; W., Th., F., 8-1, *White 20*. Messrs. MACGILLIVRAY and RILEY.

7. **Histology of Insects.** Laboratory work. Introductory course. T., 8-5; W., F., 8-1. Mr. RILEY.

Course 7 is open only to students who have taken courses 4 and 5.

8. **Economic Entomology.** Lectures and field work. Discussion of the more important insect pests and of the methods of combating them. At opportune times, the class will be taken into the field in sections to observe insect pests at work. Second half-year. Credit, 2 hours. T., Th., 10, *White 12*. Assistant Professor SLINGERLAND.

9. **Advanced Economic Entomology.** Lectures, seminary and field work. Economic problems connected with applied entomology discussed, reported upon, and field observations made. Experimental methods in breeding, photographing, investigating and combating insects discussed and studied. Second half-year. Credit, 1 hour. One afternoon a week by appointment. *Insectary*. Assistant Professor SLINGERLAND.

Course 9 is designed for advanced students who desire to fit themselves for Experiment Station work. The course is open only to students who have taken Courses 1, 3, 4, 5, and 8.

10. **Classification of the Coccoidea.** A course designed to familiarize the student with the more injurious species of scale insects, the method of preparing specimens for study, and the systematic arrangement of the species. Lectures and laboratory work. Second half-year, at hours to be arranged. *White 20*. Credit, 2 hours. Mr. MACGILLIVRAY.

Course 10 is open only to students who have had courses 4 and 5.

11. **Morphology and Classification of the Arachnida.** Special laboratory course. M., T., 8-5; W., Th., F., 8-1, *White 20*, Professor COMSTOCK, and Messrs. MACGILLIVRAY and RILEY.

12. **Morphology and Development of Insects.** Lectures and demonstrations. Second half-year. F., 10, *White 12*. Credit, 1 hour. Professor COMSTOCK and Mr. RILEY.

Course 12 is open only to students who have taken courses 1, 3, 4, and 5. Students are advised to take course 7 also before taking this course.

13. **Research in Entomology.** Advanced laboratory course, special work arranged with reference to the needs and attainments of each student. M., T., 8-5; W., Th., F., 8-1, *White 20*. Professor COMSTOCK and Messrs. MACGILLIVRAY and RILEY.

14. **Seminary.** The work of an entomological seminary is carried on by the *Jugate*, an entomological club which meets for the discussion of current literature, and of the results of investigations. Attendance at the meetings may be counted as laboratory work. M., 4-5, *White 12*.

Summer Term.

After 1904 the summer term in Entomology will be discontinued as a distinct term; but courses in Entomology will be offered in the Summer Session.

B. Agricultural Chemistry.

81. **Agricultural Chemistry.** General course. Second half-year. Six hours. Three lectures, M., W., F., 11, *Morse Hall, Lecture Room, No. 4*. Two laboratory periods and one recitation. Assistant Professor CAVANAUGH.

This course treats of the fertility of the land, and deals with such subjects as the composition of plants, the sources of their food, the chemical and physical properties of soils, and the composition and behavior of fertilizers and manures.

This course is open only to those who have had Chemistry Course 1.

82. **Agricultural Chemistry.** Advanced course. Lectures, two hours. First half-year, W., F., 12, *Morse Hall*. *Lecture-room No. 4*. Assistant Professor CAVANAUGH.

83. **Agricultural Analysis.** Laboratory practice. Hours by appointment. First half-year. Foods and feeding stuffs, sugar beets and sugar house products, and dairy products. *Morse Hall*. Assistant Professor CAVANAUGH.

Open only to those who have had Chemistry courses 1 and 6.

84. Agricultural Analysis. Laboratory practice. Hours by appointment. Second half-year. Soils, fertilizers, insecticides and fungicides. *Morse Hall.* Assistant Professor CAVANAUGH.

This course is open only to those who have had courses 1 and 6.

85. Dairy Chemistry. First half-year. Lectures. Two hours. W., F., 10, *Morse Hall, Lecture Room No. 3.* Laboratory practice in Dairy Chemistry is given in course 83. Assistant Professor CAVANAUGH.

C. Soils.

1. Agricultural Soils. An elementary course covering the nature, origin and classification of soils. Based on Rocks, Rock Weathering and Soils, G. P. Merrill; The Soil, F. H. King; and Reports and Bulletins of the Bureau of Soils, U. S. Department of Agriculture. Two hours lectures, 1 hour laboratory per week during first semester. The laboratory work will include field excursions for inspection of soils in the vicinity of Ithaca, N. Y. T., Th., 10, S., 10-12:30. *Morse Hall, Lecture Room No. 2.* Professor BONSTEEL.

2. Soils of the United States. An introductory study of the chief soil provinces, soil series and soil areas of the United States, with special reference to soils of New York State. Intended as a basis for advanced work in the study of adaptation of crop to soil and of intensive farming. Two hours lectures during second semester. T., Th., 10. *Morse Hall, Lecture Room No. 2.* Professor BONSTEEL.

3. Soil Mapping. The preparation of large scale soil charts of portions of the University farm. A plane table survey of the plats will be prepared as a base map upon which the different soils are to be mapped. In addition a small area will be mapped on the scale of 1 in. = 1 mi. by the Bureau of Soils field methods. Must be preceded by course 1. One hour a week after Easter recess, by appointment (at least 30 hours actual field work will be required). *Morse Hall.* Professor BONSTEEL.

4. Soil Seminary. A study of American soil literature with preparation of reports on selected subjects, such as acid soils, worn out and abandoned lands, swamp and marsh soils, methods of soil investigation, crop producing power (soil fertility), soil classification, etc. Must be preceded by courses 1 and 2 or by courses 1 and 3. *Morse Hall.* Professor BONSTEEL.

5. Research work in field and laboratory investigation of soils. Study of special problems by advanced students, as a basis for thesis work. Hours as arranged. Must be preceded by Courses 1 and 2 or by Courses 1 and 3. *Morse Hall.* Professor BONSTEEL.

D. Agronomy.

11. **Field Crops.** Lectures and recitations on the history, production, cultivation and marketing of farm crops. Practice with growing and dried specimens, including cereals, grasses, clovers and other forage crops. First half-year. Three lectures per week; practice one afternoon per week. Four hours. Required of juniors. *Morrill 19 and 20.* M., W., F., 9. Th., 2-4:30. Professor HUNT.

This course must be preceded or accompanied by Soils Course I.

12. **Farm Management.** Lectures and recitations on present agricultural methods in various countries; cost and relative profit of various farm operations and systems. Second half-year. Three lectures per week; practice one afternoon per week. Four hours. Required of juniors. *Morrill 19 and 20.* M., W., F., 9. Th., 2-4:30. Professor HUNT.

13. **Advanced Agronomy.** Laboratory and research work upon the best methods of crop production, including a detailed study of experimental results with one or more field crops, supplemented with lectures and recitations. First half-year. Practice two afternoons per week. Two hours. *Morrill 20.* M., F., 2-4:30. Professor HUNT. This course must be preceded by Course 11 and must be accompanied by Course 15.

14. **Advanced Agronomy.** Laboratory and research work upon the best methods of crop production, including a detailed study of experimental results with one or more field crops, supplemented with lectures and recitations. Second half-year. Practice two afternoons per week. Two hours. *Morrill 20.* M., F., 2-4:30. Professor HUNT. This course must be preceded by Course 11 and must be accompanied by Course 15.

15. **Seminary Work.** Discussion of research work and reports upon special topics. Required of all students taking graduate work in agronomy. Required of undergraduate students taking Agronomy 13 and 14. One afternoon per week. One hour. *Morrill 20.* W., 2-4:30. Professor HUNT, Mr. GILMORE, and others.

19. **Farm Practice.** An elective course throughout the Freshman and Sophomore years especially designed for students who are not familiar with ordinary farm methods and practices. One afternoon per week by appointment. One hour. Mr. GILMORE.

E. Horticulture.

Courses 1 and 2 in Botany are prerequisites to courses in Horticulture, except No. 27.

20. **Nursery and Orchard Practice.** Deals with the multiplica-

tion and subsequent care of plants, grafting, budding, making cuttings, pollination, pruning, spraying, garden tools, etc. Two hours, with laboratory. First half year. Three hours. *Morrill 19.* T., Th., II, W., or F., 2-4:30. Professor CRAIG and Mr. NORTHRUP.

The classes in Nursery and Orchard Practice and Pomology (20 and 23) participate in such excursions as may be arranged from time to time through the fruit-growing regions of the State.

21. **The Literature of Horticulture and Landscape Gardening.** An examination of the writings of European and American authors, with special reference to the evolution of horticultural methods. Second half-year. One hour. *Morrill 19.* T., Th., II for first half of term. Professor CRAIG.

22. **Plant-Breeding,** with special reference to the improvement of orchard fruits. Second half-year. One hour. *Morrill 19.* T., Th., II. Professor CRAIG. For half term from Easter recess until Commencement.

23. **Practical Pomology.** Lectures, text-book and other class exercises on the cultivation of fruits. Three hours. Second half-year. *Morrill 19.* M., W., F., II. Course 20 a prerequisite. Professor CRAIG.

24. **Systematic Pomology.** Advanced course in classification and systematic study of fruits. Two hours. First half-year. Lectures, M., 10. Laboratory, T., 2-4:30. Must be preceded by course 23. Professor CRAIG.

25. **Greenhouse Construction and Management.** Lectures and text-book, with afternoon laboratory at forcing-houses. First half-year. Two hours. *Morrill 19.* W., 8, M. or T., 2-4:30. Professor CRAIG and Mr. NORTHRUP.

26. **Olericulture.** Lectures and text-book upon the cultivation of vegetables. Second half-year. One hour. *Morrill 19.* S., II. Mr. NORTHRUP.

27. **Handicraft.** Practical work in the forcing-houses and gardens, with familiar talks. One or two hours by appointment. Throughout the year. Limited to 12 students first term, 18 second term. Mr. NORTHRUP and Mr. HUNN.

28. **German or French Horticultural Reading.** Open to horticultural students who have had German or French 1 and 2 or the equivalent. Two hours. M., W., 10. *Morrill 19.* Mr. LAUMAN.

29. **Seminary Work for Advanced Students.** One hour. By appointment. Professor CRAIG and Mr. NORTHRUP.

30. **Investigation** incident to previous courses. For graduates and advanced students. Hours by appointment. Professor CRAIG.

F. Animal Husbandry.

31. Animal Husbandry. The principles of breeding, including the history, development, creation and improvement of the various races and breeds of farm animals; the principles of feeding, care, selection and management of dairy and beef cattle, horses, sheep and swine; lectures M., W., F., 12. Practice one hour by appointment. Four hours through the year. *Dairy Building and Judging Pavilion.* Professor WING and Mr. TRUEMAN.

32. Advanced and Seminary Work in Animal Technology. Lectures, conferences and reports. Tuesday 4:30, one to three hours. Must be preceded by Course 31. The work will be largely individual and will afford opportunity for intimate and close study of the various breeds of improved stock. *Dairy Building.* Professor WING.

33. Practice in Feeding and Stable Management. The student will be put in charge of a certain number of animals and will be required to prepare the food and keep records of consumption and production. Must be preceded or accompanied by Course 31. The ability to milk well is required. Daily 7:30-9. Two or three hours. *Barns and Stables.* Professor WING.

[**34. Animal Mechanics and Exterior.** Lectures and recitations upon animal mechanics, proportions and the relation of the latter to specific uses. Practice in measuring animals and testing the value of given measurements for given purposes. First half-year. T., Th., S., 9 and M., 2 to 4:30. Three lectures or recitations per week. Practice one afternoon per week. Four hours. *Judging Pavilion.* Professor HUNT. Not given in 1904-5.]

36. Animal Husbandry. Special course for students in the Veterinary College. The Principles of Breeding and Feeding Animals, with the history of the improved breeds and practicums in compounding rations and stock judging. M., 10, Th., 10-1, F., 10. Professor WING.

37. Poultry. Origin, History and Classification of the domestic breeds of poultry; breeding, feeding and management; construction of buildings and laying out of plants: caponizing, killing, marketing, hatching, brooding, etc. Lectures T., Th., 9. Throughout the year. *Dairy Building.* Assistant Professor RICE.

38. Poultry Practice. One or more hours by appointment. A. M. and M. and afternoons. This course takes up poultry carpentry, judging, care of fowls, handling incubators and brooders, study of the egg, anatomy of the hen, etc. Must accompany or follow Course 37. *Poultry Yards.* Assistant Professor RICE.

39. Poultry Seminary. One or more hours by appointment.

Open only for students who have taken 37 and 38. For advanced study and research. *Dairy Building*. Assistant Professor RICE.

G. Dairy Industry.

41. **Milk and Butter.** The character of milk, methods of handling for different commercial purposes, pasteurization, tests for purity, butter making and marketing. Must precede courses 42, 43 and 44. First half year before Christmas. Credit three hours. Lectures and text book T., Th., 10. Practice two periods each week by appointment. *Dairy Building*. Professor PEARSON and Mr. TRUEMAN.

42. **Cheese.** Cheddar cheese, its manufacture and marketing. Open only to those who have had Course 41. Second half year after Easter. Credit two hours. Lectures and text book, Th., 10. Practice includes eight exercises of five hours each by appointment. Students expecting to take this course should report to the professor in charge before Easter vacation. *Dairy Building*. Professor PEARSON and Mr. HALL.

43. **Market Milk and Milk Inspection.** The production and control of market milk, with special reference to its improvement. Open only to those who have had course 41. Second half year after Easter. Credit two hours. Lectures and text book W., F., 10. Practice by appointment. *Dairy Building*. Professor PEARSON.

44. **Advanced Work in Laboratory and Seminary.** Open only to those who have had Course 41. Credit as arranged. *Dairy Building*. Professor PEARSON.

H. Agricultural Engineering and Architecture.

[51. **Field Engineering.** Lectures, recitations and practice in surveying and plotting the farm; roads, fences and water supply, drainage and irrigation. Second half-year. Two lectures per week. Practice one afternoon per week. Three hours. T., Th., 11, T., 2-4.30. *Morrill 20 and South Barn*. Professor HUNT and Mr. GILMORE. Special lecturers on roads will be secured. Not given in 1904-5.]

52. **Farm Machinery.** Capital invested, construction, cost, life, uses and draft of tillage, seeding, harvesting, threshing, cleaning, grinding machinery, vehicles and farm motors. Lectures, recitations and practicums. Second half-year. Two lectures per week. Practice one afternoon per week. Three hours. T., Th., 11, T., 2-4.30. *Morrill 20 and South Barn*. Professor HUNT and Mr. GILMORE.

[56. **Farm Buildings.** Study and designing of farm buildings. Open to juniors, seniors and to others by special permission. W., 2-4.30. One hour throughout the year. *Forcing-houses*. Limited to fifteen students. Mr. LAUMAN. Not given in 1904-5.]

I. The Farm Home.

61. **The Homestead.** The externals of a farm home—layout, buildings, landscape gardening, ornamenting, lawn-making, the home garden, water supplies, rural architecture, sanitation. First half-year. Two hours. *Morrill 20.* T., Th., 10. Professors BAILEY, CRAIG, MARTIN, OGDEN and others. (The first part of this course is also given to out-door art students, Course 81.)

62. **Woman's Work and Home Economics.** Social conditions, past and present; shelter, house and clothing; sanitary equipment of the home, decorating and furnishing, household service, food, maintenance, hospitality, health and conservation of strength. First half-year. Two hours. *Morrill 20.* W., F., 10. Miss VANRENSHAAER and others.

63. **Literature and Art for the Farm Home.** A discussion of popular books in all branches of science. Biographies of men prominent in American history and reading from the writers of fiction, which represents truthfully different phases of development in different sections of our country. Also a discussion of periodicals and pictures attractive and suitable for the farm home. Second half-year. Two hours. *Morrill 20.* W., F., 10. Mrs. COMSTOCK.

J. Rural Economy and Sociology.

71. **Elementary Economics of Agriculture.** Lectures, discussions and reports. A study of the interrelations of economics and agriculture. First half-year. M., W., 9. Two hours. *Morrill 19.* Mr. LAUMAN.

72. **Advanced Economics of Agriculture.** A seminary in which will be studied some particular problem. The subject for 1904-5 will be co-operation in agriculture. For 1905-6 the subject will be the question of labor in agriculture. Second half-year. Th., 3.30-5.30. Two hours. *Morrill 19.* Mr. LAUMAN.

74. **Farm Accounting.** Occasional lectures on the principles of accounting with practice. Second half-year. One hour. F., 9. *Morrill 19.* Mr. LAUMAN.

75. **History of Agriculture.** Lectures and reports. An outline of the development of the principles of agriculture. First half-year. T., Th., 9. Two hours. *Morrill 19.* Mr. LAUMAN.

77. **Rural Sociology.** Lectures. The present social status and problems of the rural community. Second half-year. T., Th., 9. Two hours. *Morrill 19.* Mr. LAUMAN.

K. Outdoor Art.

This is a two-year course, intended to comprise junior and senior years in the College of Agriculture. Before the student enters on the senior year of the Outdoor Art Course he must have had the following subjects :

Architecture 50 (College of Architecture), 1 hour throughout the year.

Pen and colored topography 6 (College of Civil Engineering), 2 hours first or second half-year.

Land Surveying 10 (College of Civil Engineering), 3 hours second half-year.

Before graduating he must also have completed the following subjects :

Dendrology 9, 3 hours throughout the year.

Economic Entomology 8, 2 hours second half-year.

Nursery and Orchard Practice 20, 3 hours first half-year.

Literature of Horticulture and Landscape Gardening 22, 1 hour second half-year.

Green-house Construction and Management 25, 2 hours first half-year.

Handicraft in Horticulture 27, 1-3 hours by arrangement.

The Homestead 61, 2 hours first half-year.

Farm Mechanics and Engineering 51, 3 hours second half-year.

Special outdoor art work for 1904-5 will be as follows :

81. **Theory and Aesthetics of Outdoor Art and Landscape Architecture.** Lectures, text book and discussion. First half-year. Two hours. T., Th., 10. *Morrill 19.* Professor BAILEY, Messrs. MANNING, FLEMING, and others.

82. **Design in Landscape Architecture.** Work with plans, drafting, planting specifications, etc. One year. Two hours, by appointment. Mr. MANNING, Mr. FLEMING.

83. **Freehand Sketching.** Rendering in pencil, pen and ink, and water color, of outdoor subjects, with particular reference to landscape and plant forms. One year. Two hours by appointment.

[86. **Plant Material of Outdoor Art.** Lectures and other exercises. First half-year. Two hours. Not given in 1904-5.]

[89. **Advanced Outdoor Art.** Advanced problems in outdoor art. For advanced undergraduate and graduate students. Hours and credits as arranged. Throughout the year. Not given in 1904-5.]

L. Two-Year Special Course in Nature-Study.

This course is designed to help persons who expect to teach nature-study and country-life subjects in the public schools. Persons actually engaged in teaching, and also all students in the University who signify their intention to teach, are eligible. A certificate will be given on completion of 60 hours in the courses prescribed below, together with such other work in the College of Agriculture as may be approved by the Director.

(a) SUBJECT-MATTER COURSES.

Botany 1, 2, 3 hours, throughout the year.

Botany 5, 2 hours, second half-year.

Invertebrate Zoology 1, 2 hours, first half of first half-year.

Entomology 3, 3 hours.

Systematic and Economic Zoology 6, 2 hours, throughout the year.

Geology 1, 3 hours, throughout the year.

Soils 1, 3 hours, first half-year.

Agronomy 11, 4 hours, first half-year.

The Homestead 61, 2 hours, first half-year.

Handicraft in Plant-growing for Nature-Study Students 30a, 1 hour, second half-year.

(b) PRACTICE IN NATURE-STUDY.

91. **Seminary**, to discuss ways and means. One laboratory hour, by appointment, throughout the year. Mrs. COMSTOCK and others.

92. **Home Nature-Study Work**. Work in training classes in the Ithaca schools, in which students are also to take part. One hour, by appointment, throughout the year. Mrs. COMSTOCK.

93. **Junior Naturalist Work** in the public schools of Ithaca, comprising school-room work, excursions, and other exercises with children. Two hours, by appointment, first-half year. Miss McCLOSKY.

94. **Junior Gardener Work**, comprising actual garden-making with children on school grounds and in the University school-gardens. In winter the work will be conducted in the forcing-houses, where plant growing subjects will be taken up in such way as to adapt them to elementary school conditions. Two hours, second half-year. Professor BAILEY, and others.

Students are requested to attend Professor DeGarmo's "Philosophy of Education," course 1. Attention is also called to the summer work in Entomology.

M. Miscellaneous Courses.

101. **Lectures in General Agriculture.** First half-year. Three hours. M., W., F., II. *Morrill 19.* Professor ROBERTS.
102. **Evolution and the Principles of Breeding.** Second half-year. Three hours. M., W., F., II. *Morrill 19.* Professor BAILEY.
103. **Agricultural Meterology and Climatology.** Second half-year. Three hours. M., W., F., 8-9 or 12-1, as arranged. Lectures and laboratory. Mr. R. G. ALLEN.
104. **German Agricultural Reading.** The object of this course is to familiarize the students with Agricultural German. Two hours. T., Th., 10. *Morrill.* Mr. LAUMAN.

(Persons desiring to take the winter-course should apply to the Director, College of Agriculture, for special announcements.)

N. Winter Courses.

Three Winter-Courses open Jan. 5, 1905. One is the "General Winter-Course," another the "Winter Poultry Course," and the third the "Dairy-Course." They continue eleven weeks. These are a part of the Extension Department work, maintained by the State. A special circular gives full information concerning them and may be had on application to the Director of the College of Agriculture.

COLLEGE OF ARCHITECTURE.

FACULTY.

JACOB GOULD SCHURMAN, A.M., D.Sc., LL.D., President.
CLARENCE A. MARTIN, Professor of Architecture in charge of the College of Architecture.
CHARLES BABCOCK, A.M., Professor of Architecture, Emeritus.
MAURICE J. PRÉVOT, A.D.G., Professor of Architecture in charge of Design.
OLAF M. BRAUNER, Assistant Professor of Drawing and Painting.
ALBERT C. PHELPS, B.S., M.Arch., Assistant Professor of Architecture.
HIRAM SAMUEL GUTSELL, B.P., A.M., Instructor in Freehand Drawing and Art.
ALDEN KITTREDGE DAWSON, Instructor in Freehand Drawing and Art.
R. HAROLD SHREVE, B.Arch., Instructor in Architecture.
RALPH ELLIOTT ABELL, B.S., Resident Fellow 1904-1905.
JULES ANDRÈ SMITH, M.S. in Arch., Travelling Fellow, 1904-1906.

THE COURSES IN ARCHITECTURE.

A good course in Architecture may be divided into four main parts :
1. Construction, both theoretical and practical ; 2. Expression, or the technical representation of architectural or decorative ideas on paper ; 3. Composition, which includes the science of convenient and effective planning and the art of architectural and decorative design ; 4. That broad field which the literature of architecture covers and in which are included History of Architecture and the many interesting and important questions which arise in connection with the practice of architecture and which often belong to the allied professions, such as Engineering and Law. The following course has been based upon this frame work. Minor changes and additions may be made from time to time, but the scheme of teaching will, in general, be carried on as described below in detail.

Construction and Practice.

Under this head are grouped all of those courses bearing on the purely practical work of the profession as distinguished from the aca-

thetic. The aim is to give the student a thorough grounding in the principles underlying sound construction, sanitation, and the best practice in the installation of all modern conveniences. After the pure mathematics, the technical work begins with a course in Mechanics of Materials in which the theory of mechanics is taught and the strength of materials discussed. This is followed by the work in Structural Details which makes direct application in a special way of the principles taught in the preceding course.

The ordinary problems relating to materials and construction are taken up in the Masonry Construction, Specifications, and Working Drawings. This work consists of lectures, recitations, general discussions and drawing. In the lectures, recitations, etc., the work of the various trades are taken up and materials, methods, and workmanship thoroughly discussed, ending with a careful and systematic study of specifications. Heating and ventilation are studied in a separate course and under a specialist. Plumbing and sanitary engineering of buildings, and the discussion of building contracts are subjects for special work in the seminaries. The drawing in connection with the above work is made to conform as closely as possible to the work done in the preparation of working drawings in an office, with the advantage that it can be arranged in a consecutive and progressive order. In conjunction with the lectures on the planning of domestic buildings the student makes sketch plans and designs for a series of buildings ranging from the simple laborer's cottage to the most elaborate mansions built without the hamper of a cost limit. Following this special drill in planning and design, he is required to design a building of moderate cost—usually a dwelling house—under such limiting conditions as might be imposed by a client, prepare the complete scale working drawings, and make typical full size details for its construction.

Throughout all of his work the student is required to construct carefully and scientifically. By the middle of the junior year he is prepared to take up the course in advanced construction which is devoted to the consideration of steel and fireproof construction, and consists of a series of fully illustrated lectures and the working of steel framing plans, foundations for heavy buildings, and the details of steel columns, girders and trusses.

Expression.

This includes free-hand drawing, drawing from the antique and from life, modeling, sketching from nature, elements of architecture, shades and shadows and perspective. The aim of this work is to

train the eye to a sense of form and color, the hand to steadiness and delicacy of touch, and the judgment to a nice distinction between values. In all of this work the attitude of the architectural student is precisely that of the sincere art student. False, exaggerated effects for the sake of attracting attention are discountenanced, but vigorous, effective presentation of architectural ideas, in harmonious tones inspired from nature, are heartily encouraged.

Architectural Composition.

This subject is taught by means of a series of lectures in the second year and a succession of problems in design throughout the second, third, and fourth years. The design of the second year is usually referred to in the College as Second Class Design, and that of the third and fourth years as First Class Design. Programs of competition are issued upon pre-arranged dates, and each student is required to hand in a set of drawings showing his own interpretation of the problem as governed by the conditions. These drawings are judged by a jury composed of the entire faculty of the College of Architecture, the acceptable drawings being graded mention, first mention, second medal, and first medal, according to the excellence of solution and presentation. The author of each design is then credited with counts or "values" that in design take the place of the numerical marks given in other subjects. In the larger problems a mention counts 1 value; 1st mention, two values; 2d medal, three values; 1st medal, four values; and in sketch problems these grades count one-half as much as in the larger problems. In the judgment each member of the faculty pays particular attention to that part of the work which is the result of his special teaching. For example, the Professor of Construction studies the designs to determine whether or not they admit of direct and rational construction, while the Professor of Freehand Drawing criticizes the sculptural details and the general color schemes of the designs. Thus not only do the drawings receive careful criticism, but the Professors are able to follow the results of their teaching, while all in the faculty maintain a lively interest in the progress of architectural design, which is conceded to be the chief aim of architectural schools. In order to avoid the danger of becoming too theoretical, the course in working drawings, described under construction, is introduced after the students have spent their sophomore year in design. Experience has shown that this work has a wholesome influence upon the students, rendering more practical and sensible their work in the latter part of the course.

History of Architecture, etc.

Ancient Greece, in her philosophy, her literature and her art, has affected to an incalculable degree the civilization of modern times. The architectural influence percolating through Rome and the Renaissance has brought down to to-day traditions and architectural motives which serve admirably as sources of inspiration. Imitation, however, of decorative forms which serve to describe the kind of civilization that existed in ancient times, is hardly more justifiable than would be the use to-day of Egyptian hieroglyphics as wall decorations in our buildings. They belong to the past and should be considered as possessing only historical and archaeological interest. The broad principles, however, of proportion and scale, and the subtleties of line and silhouette are matters which will always deeply concern the student of architecture and should be carefully studied in the monuments of all ages. The reserve of the Greeks contrasted with the wonderful daring of the Gothic builders presents an illustration of the qualities that are needed in our own building architects. The study of the History of Architecture is regarded in this course as a source of inspiration rather than as a means of acquiring materials and motives for use after leaving the University. While it is true that the work in design shows throughout the three years a good deal of absolute imitation of historic forms, this wholesale adaptation is encouraged in the belief that the students will recognize in this way the true relation of historic motives to modern work ; in other words it is believed that the students will see that historic motives are useful and necessary as helps in the study of the broad principles of composition, but that they should be only considered necessary *during student days*. History of Architecture is taught through lectures illustrated by means of models, photographs and lantern slides.

The subjects cared for by the Seminary, such as legal questions, professional practice, special engineering problems, etc., are practically only touched upon. With all the work that belongs to the technical training of an architect, it would unwise to use the time necessary for a more exhaustive treatment of these allied subjects. The students become familiar with the breadth of field in these directions and are advised to employ experts for the solution of all problems that do not come properly within the scope of an architect's practice. Eminent specialists are invited each year to talk before the students on subjects allied to architecture but which cannot be specially taught in a College of Architecture. Stained glass, mosaics, furniture, mural painting, etc., are some of the topics that come under this head.

EQUIPMENT.

The rooms of the College are located on the second and third floors of Lincoln Hall, and consist of the offices, library, lecture rooms, drafting rooms, rooms for freehand drawing, water color, etc. The material equipment is especially complete along those particular lines wherein the student needs most help and guidance. The library, of course, takes first place, and is one of the best working libraries of its kind in this country. It comprises nearly all works of any note that have been published during the last century on the subject of architecture or architectural construction ; a vast number of photographs and plates mounted and arranged for ready reference ; and the bound volumes and current numbers of the leading architectural periodicals, both foreign and American. Not only is the library most complete, but above all, it is accessible at all times, and the students have free and unhampered access to books, plates and photographs, and are encouraged and urged to use the best of the material for direct reference in the drafting rooms.

Next to the library in direct helpfulness to the students in design is the constantly increasing collection of drawings made by advanced students and graduates of the École des Beaux Arts. Aside from any question of style, these are easily among the best architectural drawings ever made, and as they hang about the halls and drafting rooms of the College, their value as examples of drawing, rendering and expression can hardly be over estimated.

A collection of plaster casts both large and small, furnishes subjects for freehand drawing in pencil and charcoal ; and choice pieces of pottery, faience, terra cotta, etc., are used as studies for such of the water color work as is taken indoors.

Through the patient and untiring efforts of Professor Babcock over a period of twenty-five years, the College now has in its possession a large and valuable collection of wood, stone and plaster models illustrating the historical development of architectural form and construction.

For the work in construction there is, in addition to the library and models, a fine collection of working drawings of well known modern buildings which is being constantly added to by contributions from the offices of many of the leading architects from all parts of the country ; and as large a collection of samples of building materials as can be handled within the limits of space available.

An important part of the equipment for lecture work and illustrations is an electric lantern and a large collection of lantern slides (several thousand) that is revised and enlarged each year.

FELLOWSHIPS.

The College of Architecture possesses a Traveling Fellowship and a Resident Fellowship. The Traveling Fellowship of the value of \$2,000 is awarded in alternate years to the winner of an architectural competition. The first competition was held in October, 1898, and the fourth was held during the summer of 1904. Candidates must be under the age of thirty, and must be either graduates of the College of Architecture or those who have satisfactorily completed the two year special course. Details of the competition will be sent to all qualified candidates several weeks in advance of the issue of the programs of competition. For further information address the Professor in charge of the College of Architecture, Ithaca, N. Y.

A Resident Fellowship of the annual value of \$500 is open to all graduates of schools of architecture of approved standing in the world. The award is made in June for the following year, and each candidate must submit drawings and other credentials and file a formal application with the Registrar of the University on or before April 15th. Application forms may be obtained of The Registrar, Ithaca, N. Y.

MEDALS AND PRIZES.

The Clifton Beckwith Brown Memorial Medal was founded by Mr. John Hartness Brown in memory of his brother Clifton Beckwith Brown, killed on the field of battle at San Juan Hill. A silver replica is awarded to the senior attaining the highest standing in design during his senior year, and a bronze replica to the senior holding second place. These medals, however, are not awarded for order of merit only, and unless the standard reached in design is considerably higher than that required for mere graduation the award is withheld.

The Charles Goodwin Sands Memorial Medal, founded by the family of the late Charles Goodwin Sands of the class of '90, is awarded for all designs of exceptional merit presented in the regular competitions. The medal drawings are ranked as first and second medal drawings, according to merit. The author of a first medal drawing is awarded a silver replica and the author of a second medal drawing a bronze replica of the medal. The award is for merit alone, and while the medal has occasionally been won by a fourth year student the standard is such that the honor is usually reserved for the graduate students.

The Central N. Y. Chapter A. I. A. Prize is a prize of \$20 given annually by the Central New York Chapter of the American Institute of Architects to the winner of first place in a competition in senior

design. The award conveys with it an election to Junior Membership in the Chapter.

Other Prizes of money are frequently offered by friends of the College for competition in the regular or special problems in design.

REQUIREMENTS FOR ADMISSION.

The following subjects are required for admission: English, History, [the student must offer one of the four following divisions in History : (a) American including Civil Government, (b) English, (c) Ancient, (d) Mediæval and Modern European], Plane Geometry, Elementary Algebra.

In addition to the above primary entrance subjects, the applicant must offer as below :—

1. In Solid Geometry, Advanced Algebra, and in Plane and Spherical Trigonometry, as much as is contained in the standard American and English text-books. See pp. 37-38.

2. In Advanced French or Advanced German (French preferred) as given on pages 39 and 40.

The applicant who enters by a school certificate or a Regents' credentials must satisfy the primaries and No. 1 and No. 2 above. The applicant who enters by examination must satisfy primaries No. 1 and No. 2 above and also the additional requirement as given in No. 3 below.

3. The applicant must present a Regents' diploma (see page 49), or a certificate of graduation from an approved school (see page 50). Otherwise he must, in addition to the requirements mentioned in 1 and 2, pass examinations or present acceptable certificates representative of an amount of work equivalent to three year's time in a single subject in preparatory schools of approved standing. This additional requirement is equivalent to 12 counts on the Regents' scale in the State of New York.

For the above work a free choice among the various subjects not otherwise counted, that are taught in the preparatory schools of approved standing, will usually be accepted; while at the same time, combinations of the following subjects are recommended as the most suitable for entrance to the course in the College of Architecture: Physics, Chemistry, Geology, Freehand Drawing as below, and the alternative Modern Language.

DRAWING. The entrance in drawing for admission shall consist of drawing in charcoal from a bust, the drawing to be done in 6 hours.

*For details as to subjects and methods of admission, see pages 33-54.
For admission to the freshman class or to advanced standing from*

other colleges and universities communications should be addressed to the Registrar. See pages 33-54.

For admission as special students communications should be addressed to the College of Architecture. See page 52.

For admission to graduate work and candidacy for advanced degrees, communications should be addressed to the Dean of the University Faculty. See page 68.

COURSES LEADING TO THE DEGREE OF BACHELOR OF ARCHITECTURE.*

Course A.*

<i>Freshman Year.</i>	Hours per week.
	No. Course. 1st Term. 2d Term.
History of Architecture-----	10 ----- 3 ----- 3
Analytic Geometry-----	2 ----- 4 ----- -
Dif. Calculus-----	2 ----- 1 ----- 2
Int. Calculus-----	2 ----- - ----- 3
Elements of Architecture-----	11a. ----- 2 ----- 4
Freehand Drawing-----	12a. ----- 3 ----- 3
Descriptive Geometry ----- (Civil Eng.)	9 ----- 2 ----- 1
Shades and Shadows-----	13 ----- 1 ----- -
Perspective-----	14 ----- - ----- 2

In addition to the above the required Drill and Gymnasium must be taken.

<i>Sophomore Year.</i>	No. Course. 1st Term. 2d Term.
History of Architecture-----	20 ----- 3 ----- -
Mechanics ----- (Civil Eng.)	21 ----- 3 ----- -
Design-----	21 ----- 8 ----- 8
Drawing from the Antique-----	22 ----- 3 ----- 3
Masonry Construction-----	23 ----- - ----- 2
Clay Products and Bldg. Stones ----- (Geol.)	31 ----- - ----- 2
Composition-----	24 ----- - ----- 1

* The degree of Bachelor of Architecture is given upon the completion of either Course A or Course B. The essential difference between these two courses is that in Course B the Analytic Geometry and Calculus are omitted and the drawing advanced so that one extra half year is given to Architectural Design. It should be noted, however, that in Design the standard for graduation from Course B is much higher than from Course A, 14 values in First Class Design being required in the former as against 7 in the latter. These courses have been arranged with the expectation that students of average powers will complete them in four years; nevertheless, as Architectural ability is largely a result of artistic development and cannot be gauged by time spent in study, some students may find it necessary to spend four and a half or five years in obtaining the degree.

<i>Junior Year.</i>	<i>No. Course.</i>	<i>1st Term.</i>	<i>2d Term.</i>
History of Painting and Sculpture.....	30	I	I
Structural Details..... (Civil Eng.)	71	3	-
Design	31	-	10
Modeling	32	-	2
Planning of Domestic Buildings.....	34	2	-
Specifications.....	34a	I	-
Working Drawings.....	34b	5	-
Steel Construction and Fireproofing.....	35	3	-
Heating and Ventilating.....	36	-	1
Water Color Painting.....	37	-	2
Timber Physics.....	38	I	-
Physics	2a	2	2

<i>Senior Year.</i>	<i>No. Course.</i>	<i>1st Term.</i>	<i>2d Term.</i>
Modern Architecture.....	40	-	2
Stereotomy and the Masonry Arch. (C.E.)	72	2	-
Design	41	12	12
Life Class	42	2	-
Seminary.....	43	I	I

Course B.*

<i>Freshman Year.</i>	<i>No. Course.</i>	<i>1st Term.</i>	<i>2d Term.</i>
History of Architecture.....	10	3	3
Elements of Architecture.....	11b	5	I
Design	21	-	8
Freehand Drawing.....	12b	6	-
Descriptive Geometry..... (Civil Eng.)	9	2	I
Shades and Shadows.....	13	I	-
Perspective	14	-	2
Clay Products and Bldg. Stones... (Geol.)	31	-	2
Composition.....	24	-	I

In addition to the above the required Drill and Gymnasium must be taken.

*The degree of Bachelor of Architecture is given upon the completion of either Course A or Course B. The essential difference between these two courses is that in Course B the Analytic Geometry and Calculus are omitted and the drawing advanced so that one extra half year is given to Architectural Design. It should be noted, however, that in Design the standard for graduation from Course B is much higher than from Course A, 14 values in First Class Design being required in the former as against 7 in the latter. These courses have been arranged with the expectation that students of average powers will complete them in four years; nevertheless, as Architectural ability is largely a result of artistic development and cannot be gauged by time spent in study, some students may find it necessary to spend four and a half or five years in obtaining the degree.

<i>Sophomore Year.</i>	No. Course.	1st Term.	2d Term.
History of Architecture.....	20	3	-
Mechanics .....(Civil Eng.)	21	3	-
Design.....	21	8	-
Design.....	31	-	10
Drawing from the Antique.....	22	3	3
Modeling.....	32	-	2
Masonry Construction.....	23	-	2

<i>Junior Year.</i>	No. Course.	1st Term.	2d Term.
History of Painting and Sculpture.....	30	1	1
Structural Details .....(Civil Eng.)	71	3	-
Design.....	41	-	12
Planning of Domestic Buildings.....	34	2	-
Specifications.....	34a	1	-
Working Drawings.....	34b	5	-
Steel Construction and Fireproofing.....	35	3	-
Heating and Ventilating.....	36	-	1
Water Color Painting.....	37	-	2
Timber Physics.....	38	1	-
Physics.....	28	2	2

<i>Senior Year.</i>	No. Course.	1st Term.	2d Term.
Modern Architecture.....	40	-	2
Stereotomy and the Masonry Arch.-(C.E.)	72	2	-
Pen and Ink Drawing.....	47	-	2
Design.....	41	12	12
Life Class.....	42	2	-
Seminary.....	43	1	1

One registered hour means about three hours of actual work per week. In subjects given by means of lectures or recitations, each registered hour means one hour for the lecture or recitation, plus an average of two hours for study or work in connection with the subject. In design, twelve registered hours would require thirty-six hours per week (more or less according to the ability of the student) of actual work in the drafting room.

Architectural Engineering.

Students in Architecture wishing to specialize in Construction, or Architectural Engineering, may do so by taking all of the first three years of Course A, except the Mechanics of the Sophomore year for which should be substituted Mechanics Course 20 in the College of Civil Engineering; and by taking special work during the senior year

arranged to suit individual cases. For this special work are offered advanced work in the College of Architecture and any or all of the following subjects—for description see under College of Civil Engineering:

	No.	Course.	1st Term.	2nd Term.
Engineering Laboratory	22		2	2
Materials of Construction	25		-	5
Testing Materials	57		3	-
Structural Design	71		4	5
Stereotomy and the Masonry Arch	72		3	3
Masonry Foundations	74		-	5

A TWO YEAR SPECIAL COURSE IN ARCHITECTURE.

Special students are admitted to the College of Architecture without formal examination, provided they give evidence of ability to do creditable special work in the College and have not already been admitted to the University, nor, having applied for admission, been rejected.

The privilege of admission as special students without examination is not intended for students coming directly from secondary schools, but rather for those who have been engaged in practical work that may have fitted them for the advanced work of the special course.

A special student must be at least twenty-one (21) years of age ; he must have had a good high school training or its equivalent, including particularly a good working knowledge of geometry and algebra ; and should be familiar with the details and proportions of the classic orders of architecture as given in the Vignola. He shall have had at least three (3) years of experience in some good architect's office, or its equivalent ; and shall submit with his application examples of architectural drawing done by himself and examples of drawing—if he have such—from the cast or from life.

Should a special student desire to graduate in the College, he may do so on condition of passing all the entrance examinations and doing the required work of the regular course. He will not, however, be permitted to make up deficiencies in entrance subjects by attending university instruction in such subjects.

The following course has been arranged for special students. It does not lead to a degree, but a certificate will be issued upon its satisfactory completion. Candidates proficient in any of the subjects herein scheduled will be allowed to substitute other architectural subjects in their stead. For further information address the Professor in Charge of the College of Architecture.

First Year.

	No.	Course.	1st Term.	2nd Term.
History of Architecture	10		3	3
Design	21		8	8
Freehand Drawing	128		3	3
Descriptive Geometry (Civil Eng.)	9		2	1
Shades and Shadows	13		1	-
Perspective	14		-	2
Modeling	32		-	2

Second Year.

	No.	Course.	1st Term.	2nd Term.
History of Architecture	20		3	-
Design	41		12	12
Drawing from the Antique	22		3	3
Modern Architecture	40		-	2

A TWO YEAR COURSE IN PAINTING.*

The aim of this course is to train students who have had some preliminary instruction in drawing, and to fit them for that further training which may be advanced by work abroad under one of the greater masters, but must finally depend on the individual initiative and talent of the student.

The course is not designed for students of the literature or history of painting, but for those who intend to be painters; nevertheless it will present opportunities for technical study which would prove of advantage to the critic and writer upon art, and it can, in turn, draw upon other departments of the University for instruction in history, languages, anatomy, the sister arts of architecture and sculpture, and similar subjects needful to the painter.

Thus it should form a more solid foundation for an artist than were the student merely to draw "academies."

In addition to the very fine collection of casts in the University museum, the College of Architecture has its own collection for drawing in amphitheatre. The libraries of both University and College are exceptionally well equipped with works on all branches of art, and

* Applications for admission to this course will not be accepted after September, 1904, as the course will not be continued.

offer valuable opportunities for study which may be supplemented by reference to the collections of photographs. Cornell is situated in one of the most beautiful portions of New York State, Cayuga Lake and its encircling hills being famed for their charm. Moreover, excellent railroad facilities place the annual art exhibitions of Philadelphia, New York, or Boston within easy reach. Thus the University seems especially well placed, in the heart of nature, yet within calling distance of the cities which form art centres of America.

The Courses in Painting consist of: (a) A two-years' course leading to no degree; but for which certificate will be issued upon satisfactory completion. The course may be extended. (b) Special courses arranged to suit special needs.

Entrance Requirements. English, History [the student must offer one of the four following divisions in History: (a) American, including Civil Government; (b) English; (c) Ancient; (d) Mediæval and Modern European], Plane Geometry, Elementary Algebra.

In addition to these the applicant must offer as below:

1. Drawing. The applicant must pass an examination in Drawing from the Antique, or present satisfactory drawings in charcoal from the head and bust. The preparation for satisfactorily passing the examination should consist of: (a) Drawing from geometric models until the principles of massing-in a drawing and the principles of freehand perspective are fully mastered; and (b) Drawing in charcoal from plaster casts of animals, ornament, heads, busts, etc. Nine hours a week covering a period of about thirty-five weeks under a good teacher might be considered a minimum time within which a good student could reasonably expect to accomplish this preparation.

2. Advanced French or Advanced German (French preferred) as given on pages 41 and 40.

In place of the advanced language, advanced drawing equivalent to the work of courses 52 and 52a of the course in Painting may be substituted; but in case of such substitution, the language must be taken in regular University course.

3. The applicant must present a Regents' diploma (see p. 49) or a certificate of graduation from an approved high school (see p. 50). Otherwise he must, in addition to the requirements mentioned in 1 and 2, pass examinations or present acceptable certificates representative of an amount of work equivalent to three years' time in a single subject in preparatory schools of approved standing. This additional requirement is equivalent to twelve counts on the Regents' scale in the State of New York. Candidates for admission must be at least sixteen years of age, or, if women, seventeen.

The two year course consists of the following subjects : [In draughting sections, a university hour means three hours of drawing. For instance, 6 hours of drawing from the antique, means 18 hours of work per week, or work from 9-12 every morning.]

First Year.

	No.	Course.	1st Term.	2nd Term.
Drawing from the Antique.....	52	.....	6	.....
Drawing from Life.....	52a	.....	-	6
Modeling from the Cast.....	53	.....	4	.....
Modeling from Life.....	53a	.....	-	6
History of Painting and Sculpture.....	30	.....	1	.....
History of Architecture.....	50	.....	1	.....
History of Ornament.....	50a	.....	-	2
Architectural Drawing.....	50b	.....	1	.....
Artistic Anatomy.....	55	.....	-	2

Second Year.

	No.	Course.	1st Term.	2nd Term.
Painting from Still Life.....	62	.....	3	.....
Painting from the Nude.....	62a	.....	-	6
Painting of Portraits.....	62b	.....	6	.....
Composition (lectures).....	24	.....	1	.....
Composition (criticism).....	64	.....	2	.....
Perspective.....	66	.....	2	.....

Summary of Courses of Instruction.

10. **History of Architecture.** First term: Egyptian, Greek, Roman and Byzantine Architecture. Second term: Romanesque and Gothic Architecture. Three lectures per week throughout the year. T., Th., S., 9. Assistant Professor PHELPS.

11a. **Elements of Architecture.** The classic orders of architecture drawn and rendered in India ink and water color. Six drafting hours per week throughout the first term and twelve drafting hours per week throughout the second term. Mr. SHREVE.

11b. **Elements of Architecture.** The same as course 11a, but requiring fifteen drafting hours per week throughout the first term and three drafting hours per week throughout the second term. Mr. SHREVE.

12a. **Freehand Drawing.** Charcoal drawing from the cast. Nine hours of drawing per week throughout the year. Mr. DAWSON.

12b. **Freehand Drawing.** The same as course 12a, but requiring

eighteen hours of drawing per week throughout the first term only.
Mr. DAWSON.

12c. **Freehand Drawing.** For students in science courses. First term : drawing from models. Second term : drawing from models and natural objects. Six hours of drawing per week throughout the year. Messrs. GUTSELL, ——, and ABELL.

13. **Shades and Shadows.** Lectures and drawing equivalent to one university hour. Latter part of first term. Mr. SHREVE.

14. **Perspective.** One lecture and six hours of drafting per week during the second term after the Easter recess. Assistant Professor MARTIN.

20. **History of Architecture.** First term: Renaissance Architecture. Three lectures per week, M., W., F., 9. Assistant Professor PHELPS.

21. **Design.** Periodical problems arranged to occupy about twenty-four drafting hours per week throughout the year. Professor PRÉVOT.

22. **Drawing from the Antique.** Charcoal and pastel work in the Museum of Casts. Nine hours per week throughout the year. Assistant Professor BRAUNER.

23. **Masonry Construction.** Second term. Lectures and recitations. Two hours per week, supplemented by drawing and by inspection of actual work. The course is preparatory to courses 34 to 35. Assistant Professor MARTIN.

24. **Composition.** One lecture per week during the second term. Professor PRÉVOT.

Clay Products and Building Stones. Second term. One lecture and one laboratory period per week, M., 12, W., 2-4. This is an eminently practical course for the study of bricks, tiles, terra cotta, cements, and building stones with reference to composition, color, methods of production, strength, durability, weathering, etc. Assistant Professor RIES.

30. **History of Painting and Sculpture.** One lecture per week throughout the year on Tuesday afternoons at 4 o'clock. Assistant Professor BRAUNER.

31. **Design.** Periodical problems arranged to occupy about thirty hours per week during the second term. Professor PRÉVOT.

32. **Modeling.** Second term. Six hours work per week in clay modeling from busts, architectural ornaments, animals' head, etc. Mr. GUTSELL.

*34. **Planning of Domestic Buildings.** First term. Five lectures and thirty hours drafting per week during the early part of the term. The work contemplates a systematic and analytical study of house

planning, with special reference to American conditions. Assistant Professor MARTIN.

*34 a. **Specifications**; *34b. **Working Drawings**. First term. Five lectures and thirty hours drafting per week during the intermediate part the term. These courses continue the work of course 34 by the study of specifications and ordinary methods and details of construction with the preparation of one-quarter inch scale working drawings and full size details for a house designed by the student himself, under such limiting conditions as a client would be likely to impose. Assistant Professor MARTIN.

*35. **Steel Construction and Fireproofing**. First term. Five lectures and thirty hours drafting per week during the latter part of the term. This course follows course 34b with a study of special foundations, steel construction, and fireproofing of high or heavy buildings; the fireproofing being studied with reference to its application to the cheaper domestic buildings as well as to the larger steel buildings. Assistant Professor MARTIN.

36. **Heating and Ventilating**. Two lectures per week during the first half of the second term, supplemented by practical problems. W., Th., 12. Professor CARPENTER.

37. **Water Color Painting**. Six hours drawing per week in the second term, in painting from still life groups and from nature. Assistant Professor BRAUNER.

38. **Timber Physics**. First term. Two hours per week lectures and laboratory work. A short course devoted to the study of timber, its physical structure, diseases, characteristics of the different kinds of wood, methods of treatment and behavior under different conditions, etc.

40. **Modern Architecture**. Two lectures per week during the second term. M., W., 9. Assistant Professor PHELPS.

41. **Design**. Periodical problems arranged to occupy about thirty-six drafting hours per week throughout the year. Professor PRÉVOR.

42. **Life Class**. Two afternoons per week during the first term in drawing from the nude model. Assistant Professor BRAUNER.

N. B.—The life Class is held throughout the year. During the second term the work is optional for architects.

43. **Seminary**. Reviews of current technical journals. Papers and discussions upon subjects of professional interest not covered by other courses. One hour per week throughout the year. Assistant Professor PHELPS.

*Since Courses 34, 34a, 34b, and 35 are but the successive steps in a single scheme, they should be taken consecutively and in one term.

47. **Pen and Ink Drawing.** Work in pen and ink rendering, sketching and illustration. Six hours' drawing per week throughout the second term.

50. **History of Architecture.** A brief general survey of ancient, mediaeval and modern architecture. One lecture per week throughout the year. W., 12. Assistant Professor PHELPS.

50a. **History of Ornament.** Historic motives employed in architecture and decoration, their origin, evolution and application. Two lectures per week during the second term. T., F., 12. Assistant Professor PHELPS.

50b. **Architectural Drawing.** For students in painting. Drawing of the classic orders of architecture. Three drafting hours per week during the first term. Assistant Professor PHELPS.

52. **Drawing from the Antique.** Eighteen hours of drawing per week throughout the first term. This work is done at the College of Architecture from the collection of casts which belongs to the college. Assistant Professor BRAUNER and Mr. DAWSON.

52a. **Drawing from Life.** Eighteen hours per week throughout the second term, of drawing from the nude in charcoal, pencil, crayon, or red chalk. Assistant Professor BRAUNER.

53. **Modeling from the Cast.** Twelve hours' work per week throughout the first term. Mr. GUTSELL.

53a. **Modeling from Life.** Eighteen hours' work per week throughout the second term. Mr. GUTSELL.

62. **Painting from Still Life.** Nine actual hours per week for the first term. Assistant Professor BRAUNER and Mr. DAWSON.

62a. **Painting from the Nude.** Eighteen actual hours per week throughout the second term. Assistant Professor BRAUNER.

62 b. **Painting of Portraits.** Eighteen actual hours per week throughout the year. Assistant Professor BRAUNER.

64. **Composition (Criticism).** One composition per week will be required and these compositions will be criticized in class. Assistant Professor BRAUNER.

66. **Perspective for Painters.** Throughout the second term. Two lectures per week followed by experimental problems.

COLLEGE OF CIVIL ENGINEERING.

FACULTY.

- JACOB GOULD SCHURMAN, A.M., D.Sc., LL.D., President.
CHARLES LEE CRANDALL, C.E., M.C.E., Professor in charge,
and Professor of Railway Engineering and Geodesy.
IRVING PORTER CHURCH, C.E., M.C.E., Professor of Applied
Mechanics and Hydraulics, in charge of the College Library.
HENRY SYLVESTER JACOBY, C.E., Professor of Bridge Engi-
neering.
HENRY NEELY OGDEN, C.E., Assistant Professor of Sanitary En-
gineering, in charge of Descriptive Geometry, and Secretary of
the College Faculty.
WILLIAM ELTON MOTT, S.B., Assistant Professor of Hydraulic
Engineering, in charge of the General Laboratory, and Registrar
of the College.
ELMER JAMES McCaUSTLAND, C.E., M.C.E., Assistant Profes-
sor of Mining Engineering and Surveying, in charge of the
Laboratory for Testing Materials.
JOHN THOMAS PARSON, Assistant Professor of Drawing, in
charge of the Photographic and Drawing Collections.
OSCAR AUGUSTUS JOHANNSEN, B.S., A.M., Ph.D., Assistant
Professor of Structural Engineering.
ERNEST WILLIAM SCHODER, B.S., Ph.D., Engineer in Charge
of the Hydraulic Laboratory.
FRED ASA BARNES, C.E., M.C.E., Instructor in Civil Engineering
and in Railroad Engineering.
GEORGE GATES SMITH, C.E. M.C.E., Instructor in Civil Engi-
neering and in the Laboratories.
MILES ALBION POND, Ph.B., Instructor in Civil Engineering and
in Descriptive Geometry.
ORA MINER LELAND, B.S., Instructor in Civil Engineering and
in Astronomy.
CHARLES JOSEPH TILDEN, C.E., Instructor in Civil Engineering
and in Materials of Construction.
CLAUDE BERRY, A.B., B.S., Instructor in Civil Engineering and
in the Laboratories.
ALBIN H BEYER, C.E., Instructor in Civil Engineering and in the
Laboratories.

- GEORGE E RUSSELL, S.B., Instructor in Civil Engineering and in Drawing.
- HOWARD R STEWART, E.M., Instructor in Civil Engineering and in Mechanics.
- SAMUEL R BOOTHROYD, B.S., Instructor in Civil Engineering and in Descriptive Geometry.
- FRANK W SKINNER, C.E., Associate Editor, *Engineering Record*. Lecturer in Field Engineering.
- WILLIAM ORLANDO STUBBS, Mechanician to the College of Civil Engineering.
- CLINTON D CASS, Assistant Mechanician to the College of Civil Engineering.
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Members of the Faculty of Arts and Sciences who are heads of departments giving outside instruction to the students of this College. Arranged in the order of seniority of University appointments :

- THOMAS FREDERICK CRANE, A.M., LL.D., Professor of Romance Literature.
- WATERMAN THOMAS HEWETT, A.B., Ph.D., Professor of German Literature.
- EDWARD LEAMINGTON NICHOLS, B.S., Ph.D., Professor of Physics.
- JAMES MORGAN HART, A.M., J.U.D., L.H.D., Professor of Rhetoric and English Philology.
- JEREMIAH WHIPPLE JENKS, A.M., Ph.D., Professor of Political Economy, etc.
- LUCIEN AUGUSTUS WAIT, Professor of Mathematics.
- GEORGE FRANCIS ATKINSON, Ph.B., Professor of Botany.
- LOUIS MUNROE DENNIS, Ph.B., B.S., Professor of Chemistry.
- HENRY SHALER WILLIAMS, B.S., Ph.D., Professor of Geology.
- WILLIAM PERCY VAN NESS, Professor of Military Science.
- CHARLES VAN PATTEN YOUNG, A.B., Acting Professor of Physical Culture.

Special Lecturers for 1903-1904.

- PROFESSOR EDWIN HAMLIN WOODRUFF, LL.B., "Contracts."
- COLONEL W. F. MORSE, "Disposal of Municipal Wastes."
- GEORGE H NORTON, C.E., "Movable Bridges."
- COLONEL ALEXANDER M MILLER, Corps of Engineers, U.S.A.,
"Water Purification Plants."

GENERAL PLAN OF STUDIES.

The courses of preparatory and professional studies have been planned with a view to laying a substantial foundation for the general and technical knowledge needed by practitioners in civil engineering ; so that our graduates, guided by their theoretical education and as much of engineering practice as can well be taught in schools, may develop into useful investigators and constructors.

The facilities for instruction and for advanced investigations are believed to be thorough and efficient. Laboratory work is required of the students in chemistry, mineralogy, geology, physics, botany and civil engineering ; for which purpose in addition to the special library and laboratories of the College, all the libraries, collections and laboratories of the University are open to the students of this College.

The work of the undergraduate student is based upon an extended course in the mechanics, and the graphics and economics of engineering. The object aimed at is to give as thorough a preparation as possible for the general purposes of the profession in the following subjects : the survey, location and construction of roads, railroads, canals, and water works ; the construction of foundations in water and on land, and of superstructures and tunnels ; the survey, improvement, and defense of coasts, and the regulation of rivers, harbors and lakes ; the astronomical determination of geographical coördinates for geodetic and other purposes ; the application of mechanics, graphical statics, and descriptive geometry to the construction of the various kinds of arches, bridges, roofs, trusses, suspension and cantilever bridges ; the drainage of districts, sewerage of towns, and the irrigation and reclaiming of land ; the design, construction, application and tests of wind and hydraulic motors, electrical and heat engines, and pneumatic works ; the preparation of detail drawings, of plans and specifications, and the proper inspection, selection, and tests of the materials used in construction. Instruction is given in engineering and mining economy, finance and engineering jurisprudence. The latter subject deals in an elementary manner only, with the questions of easements and servitudes, and the ordinary principles of the laws of contracts and riparian rights. A course in political economy, of three lectures per week, extending over one year, is given for the purpose of elucidating the economic value of the civil engineer as a director of industrial enterprises, and his rôle in the industrial development of the country.

To the fundamental instruction of a general undergraduate course, many special courses are added for graduates desiring advanced study

in the separate branches of their profession. Admission to these courses is open to graduates of this college or of other institutions having undergraduate courses similar to our own. Advanced and special instruction is offered in the following subjects : bridge engineering, railroad engineering, sanitary, municipal, hydraulic, mining and geodetic engineering. The object of this instruction is to provide the young graduate with the means of prosecuting advanced investigations after such experience in professional life as may lead him to decide in the choice of a specialty. The same courses are open to teachers and professional men in a more advanced form and with larger liberty in the use of laboratory equipment. Lectures in the museum and laboratories are given to these students for the purpose of directing and aiding their original researches. All graduate work may alternate with a limited number of elective studies in other colleges of this University ; but the choice of electives implies suitable preparation for their prosecution, and must, besides, meet with the approval of the Director of the College.

The College of Civil Engineering is quartered in a substantial brown stone structure, two hundred feet long and seventy feet wide, specially designed for the purpose of the College. In addition to the laboratories and museums, the building contains the working library of the College, aggregating about three thousand volumes, reading-rooms, class-rooms, and draughting rooms. The building contains also the offices of the U. S. Weather Bureau for the State of New York. The astronomical and portions of the geodetic equipment of this College are housed in the Fuertes Observatory containing all the instruments required to find time, latitude, longitude and azimuth. The instruments are duplicates, in the main, of similar ones in use by the U. S. Coast and Geodetic Survey. The large hydraulic laboratory with its buildings and equipment is located at the Fall Creek gorge, within a short distance of the College buildings.

LABORATORIES.

The Civil Engineering Laboratories within the College building, cover a floor area of about fifteen thousand square feet. They comprise :

1. A General Laboratory containing a large collection of machines and apparatus for the experimental study of subjects connected with the theoretical instruction of the lecture rooms, and as preparation for special laboratories.
2. An Hydraulic Laboratory with complete appliances, piping, mouth-pieces, and special castings for the determination of coefficients ;

weirs provided with different forms and heights of notches and orifices; venturi and other water meters; gages of various kinds with electrical clock work or other automatic devices for the most accurate measurements either of weights, velocities, pressures, equilibrium, viscosity or heights of heads; various machines or contrivances for determining the flow of liquids in closed and open conduits; several models of water wheels; dynamometers of various kinds; a considerable variety of current meters, some of which record the speed automatically; in others, the revolutions are determined by sound; and still others record, by electrical devices, both the velocity and the direction of the current. On the south bank of Fall Creek a curved concrete masonry dam 200 feet long has been built, which stores up a large amount of water, forming the Beebe Lake, and the dam is provided with an ample spill-way capable of delivering with safety any flood from the 120 square miles which constitute the water shed of the stream.

A canal also built of concrete masonry, and 450 feet long, is located south of the south anchorage of the dam. Its up-stream end is provided with six gates, baffle boarding, and a standard weir to which various devices are attachable for measuring heads, and regulating the amount of air imprisoned under the water sheet. The canal is sixteen feet wide and ten feet in depth of water; but the head of water, in some of the experiments, can be made to reach 225 feet. Heads of twenty feet may be utilized within the canal; of eighty feet in the lower part of one of the laboratory buildings; and, for special experiments, a ten-inch pipe supplies water from the reservoir of the University water works, which is one hundred and forty-five feet above the canal. This head can be utilized through a stand pipe at the bottom of the gorge, below the canal in the large laboratory building. The canal is provided with an electric motor placed on a steel truck running upon rails fastened to the top of its walls, and the speed of the truck can be regulated at pleasure, marking its speed and position on various chronographs.

The water waste of the canal can be regulated by means of valves and terminal weirs until required water velocities are obtained within the canal. At the west end of the canal there is a vertical six foot steel pipe to which water can be admitted either by a lateral channel from the main canal or through a forty-eight inch pipe which taps the dam and Beebe Lake. This subdivision of heads and water volumes enables the performing, simultaneously, class work and experiments, without interfering with the regular conditions of each experiment. The lateral canal is also provided with weirs and gages upon

the removable portion of the walls of this sub-canal. The lower laboratory building is a slightly, solid structure eighty feet long and about eighty feet high, and contains a fifty thousand pound scale and tank. This building shelters and hides from view the steel stand pipe to the north of which a suitable staircase carries within its well-hole all the necessary piping of iron and glass manometers.

It may be desirable to add that further improvement of devices is in contemplation for the measurement of large volumes of water, beyond the capacity of the canal, stand pipe and the present weighing scales.

Although the laboratory needs still further additions to its very expensive equipment, and its work has hardly begun, the utility of this plant has been demonstrated by calls from all parts of the country, and from abroad, for the performance of experiments of great importance. Among these may be mentioned the valuable results obtained for the U. S. Deep Waterways Commission, the Michigan Lake Superior Power Company, the work done for the City of New York in connection with its water supply, and for the U. S. Geological Survey. It now seems assured that this hydraulic laboratory will soon become the center of information and reference for the solution of the numberless hydraulic questions awaiting just such opportunities as the conditions of this laboratory offer and which exist nowhere else in this country or in Europe.

3. **A Cement Laboratory** provided with automatic machines for the establishment of standard tests. The apparatus of this laboratory has been designed by specialists in view of its needs. Standard conditions are aimed at in all tests. The sifting of cements, moulding, condensing and testing are performed mechanically. The laboratory contains: Three machines for tension tests, three machines for crushing tests ranging from two to two hundred tons, one impact machine, one rattler cylinder of the dimensions recommended by the National Association of Brick Manufacturers, one abrasion machine, and a special machine for determining, automatically, the rate of setting and hardening of cements.

There are also, a large number of briquette moulds, scales, plate glass mixing tables, thermometers for cement test purposes, a Bunsen pump and apparatus for testing the permeability of cements, several sets of apparatus for measuring linear and volume changes during the setting of cements, their specific gravity, and fineness, a large number of scales for various purposes, varying from the most delicate chemical balances to a 400,000 pound machine. This laboratory has a water tank capacity for the storage of three thousand briquettes, and many of its appliances are utilized for tests of building materials, such

as paving and other bricks, building stone, masonry arches, walls and piers up to twelve feet in height ; in addition there are many smaller machines, appliances and tools that are used in common with the equipment of other laboratories. The apparatus designed by the Massachusetts Highway Commission for testing the cementing qualities of roadway materials is now in use.

4. **A Geodetic Laboratory** for the study of instruments of precision. This room contains a sidereal chronometer by Negus, and an accurately compensated mean time Howard astronomical clock, which furnishes the standard of time for the University. There are a large number of surveying and portable astronomical instruments for the study of instrumental errors and their constants, and this laboratory is provided with collimators, micrometric level testers, and a reversible Kater pendulum to which noddies may be attached. Also a Kew magnetometer and Barrows circle ; the manipulation of these instruments, and some of their constants, are obtained in the laboratory, but the magnetic constants and results relating to the earth's magnetism are determined, each year in the field, in connection with the systematic surveys of the Lake region of Central New York, which began in 1874. This room has also several meterological instruments devised for special purposes, like the study of wind gusts in violent storms. A Richards three-cylinder machine gives the direction of the wind, and its horizontal and vertical velocity ; but when the velocity exceeds twenty miles per hour, another specially devised machine, modified by H. T. Turner, is then started automatically, and describes upon a rotary cylinder, a curve whose ordinates are proportioned to the wind's velocity for each meter of travel. This machine works so long as the velocity exceeds twenty miles per hour ; and an ingenious contrivance prints the time, at intervals of five minutes, upon the endless paper band carried by the revolving cylinder. There are also in this laboratory standard and other mercury barometers, a Draper self-recording barometer, and several other minor instruments bearing upon the studies carried on in this laboratory.

5. **A Metric Laboratory** for the comparison of lengths, provided with a line and end measure comparator and a small Geneva dividing engine. This room is built with hollow, double walls, and the daily range of temperature is less than one degree F. In this laboratory are placed other machines and apparatus for experimentation in such portion of optics, thermodynamics, etc., as form special parts of the educational equipment of the engineer. The four meter line comparator rests on two independent piers, with two micrometer microscopes sliding on a beam, also mounted on independent piers, and the whole

comparator is properly covered by a substantial tight case. Projecting handles give motion to the cradle under the microscopes without disturbing the internal temperature of the case. A Geneva steel meter bar of the international type forms the standard of length; it has been compared at the U. S. Coast Survey Office with the International Standard. There is also a Rogers speculum metal decimeter and four-inch scale, accurately divided and compared, and a brass yard, used as subsidiary length standards. Tonnelot and Bodin thermometers, standardized at the Paris International Bureau, form the basis for temperatures. The room also contains a four foot comparator for the study of leveling rods, while an iron standard rod, fifty feet long, inlaid on the floor of the main museum, is used as the standard for steel tapes. A Mendenhall half-seconds pendulum, constructed in this College, is mounted upon a pier for determinations of the force of gravity. This pendulum is a reproduction, from patterns loaned by the Coast Survey Office, of the instruments used for the above purposes by the International Association of Geodesists, and contains improvements suggested by the experience with older instruments.

6. **A Testing Laboratory for Materials of Construction** and for full sized members, joints and structures. The 400,000 pound testing machine has a clear width of 19 inches between standards and an effective length of 12 feet for specimens in both tension and compression, the tension grips taking widths up to 8 inches for plates and 4-inch legs for angles. The capacity for beams and girders is up to 19 inches in width and to 18 feet in length, the center load at the latter limit being only 100,000 pounds.

The standard rattler with cast iron shot for paving brick and the Deval abrasion machine and Page impact machine for macadam material furnish excellent facilities for the study of roadway materials, while the stone saw and grinding wheel allow of preparing stone specimens with smooth plane beds for the testing machine without danger of injury from the hammer and chisel.

The one-fourth scale steel bridge model furnishes an excellent opportunity for comparing computed stresses with those actually existing in different members of the structure due to various loadings, the stress being found from the measured change in length of the member.

7. **A Bacteriological Laboratory** in which students may become acquainted with bacterial forms and such portions of bacteriology as bear upon sanitary engineering. The optical apparatus has been expressly manufactured for us by Richert of Vienna; and, as the result of consultation with biologists, physicians, and sanitary engineers, the balance of the equipment for the special purposes of this labora-

tory has been made by Dr. Rhorbeck of Berlin. With these exceptions the equipment contains apparatus specially manufactured by the mechanicians of the College.

8. **A Photographic Laboratory** for reproducing the appearance of tested specimens, for the purposes of the lecture room, as aid in topographical surveys, and for the distribution, to graduates and purchasers, of reprints of the great collection of progress photographs of engineering structures owned by this College. A revolving transit camera has been added to the collection of photographic appliances; its inventor, Mr. G. W. Parsons, having generously permitted its duplication by the mechaniciau of the College. This machine is capable of photographing with accuracy through an angle of 360° upon a flexible film 6 inches wide and 60 inches long.

9. The Fuertes Astronomical Laboratory and Training Observatory which contains an astronomical transit by Troughton and Simms and one by Fauth; two sidereal clocks and a mean time clock; a four-and-a-half-inch Clark equatorial; two large altazimuths reading to seconds by levels and micrometers; and two three-and-three-eighths inch zenith telescopes by Fauth, besides sextants, chronographs, chronometer, etc.

Students become here familiar with methods of observing, adjusting instruments, and making reductions and computations for the determination of time, latitude, azimuth and longitude.

The building of the College of Civil Engineering contains the offices and observatory of the U. S. Weather Bureau, being the central office for the reception of climate and other data for the State of New York, and for the dissemination of weather forecasts to the region tributary to this center.

The Museums of the College of Civil Engineering contain the following collections: 1. The Muret collection of models in descriptive geometry and stone cutting. 2. The De Lagrave general and special models in topography and geognosy. 3. The Schroeder models in descriptive geometry and stereotomy with over fifty brass and silk transformable models made in this College after the Oliver models. 4. The M. Grund collection of bridge and roof details, trusses and masonry structures, such as right, oblique and annular arches and domes, and several intricate models in stone cutting, supplemented by similar models by Schroeder and other makers. 5. A model railroad bridge of one hundred foot span, one-fourth natural size, and a numerous collection of models of track details. 6. The Digeon collection of movable dams, artificial harbors and working models in hydraulic engineering. 7. Working models of water wheels, turbines

and other water engines. 8. Several large collections of European and American progress photographs of engineering works showing the progress of construction, and many other photographs, blue-prints, models and diagrams. 9. An extensive collection of instruments of precision, such as a Troughton and Sims astronomical transit; a universal instrument by the same makers, reading to single seconds; sextants, astronomical clocks, chronographs, a Negus chronometer, two equatorials—the larger having an objective, by Alvan Clark, four-and-a-half inches in diameter, two large zenith telescopes of improved construction for latitude work, by the eye and photographic methods; spherometers and other instruments, like pier collimators, etc., necessary to complete a most efficient equipment of a training observatory. 10. A geodesic collection, consisting of a four meter comparator, built at this College of the University; a set of improved pendulums for gravimetric investigations; a secondary base line apparatus made under the direction of the Coast Survey; two new base line bars designed and constructed in the laboratories of this college, and all the portable astronomical and field instruments needed for extensive triangulations, including sounding machines, tachometers, deep water thermometers and heliotropes. 11. Among the usual field instruments, there is nearly every variety of engineers' transits, theodolites, levels, solar and other compasses, omnimeters and tachometers, with a large number of special instruments, such as planimeters, pantographs, eliptographs, arithmometers, computing machines, altazimuths, sextants, telemeters, and altimeters, hypsometers, and self-recording meteorological instruments of all descriptions. 12. A very complete set of all appliances and instruments for making reconnaissance in topographical, hydrographical and mining surveys, in addition to the instrumental equipment which is common to the museums and the nine engineering laboratories of this College, as described above.

REQUIREMENTS FOR ADMISSION.

[For entrance requirements in and after 1907 apply to the Registrar.]

The following subjects are required for admission: English, History, [the student must offer one of the four following divisions in History: (a) American, including Civil Government, (b) English, (c) Mediæval and Modern European, (d) Ancient], Plane Geometry, Elementary Algebra. See pp. 33-37.

In addition to the above primary entrance subjects, the applicant must offer as below:—

1. In Solid Geometry, Advanced Algebra, and in Plane and Spherical Trigonometry, as much as is contained in the standard American and English text-books. See pages 37-38.

2. In Advanced French or Advanced German as given on pages 39 and 40.

The applicant who enters by a school certificate or a Regents' credentials must satisfy the primaries 1 and 2 above. The applicant who enters by examination must satisfy primaries 1 and 2 above and also the additional requirement as given in Note below.

NOTE: For admission without examination the applicant must present a regent's diploma (page 49), or a certificate of graduation from an approved school (page 50); otherwise the certificate covering the requirements mentioned above in 1 and 2 must be supplemented by passing examinations showing that the applicant has done an amount of work equivalent to a course of three years' duration in a single subject in preparatory schools of approved standing,* or he must present additional acceptable certificates showing that he has completed the courses covered by the above examinations. For the above amount of equivalent work, a free choice among the various subjects taught in the preparatory schools of approved standing, and not otherwise counted, will usually be accepted; but combinations of the following subjects, equivalent to three years' time under instruction, are recommended as most suitable for entrance to the courses in the College of Civil Engineering:

- (a) History, or additional English language and literature.
- (b) Additional modern languages or literature.
- (c) Freehand or linear drawing.
- (d) Physics, chemistry, botany, zoology, geology, descriptive astronomy, or additional physiology.
- (e) Latin or Greek.

Special Students are admitted only when they are graduates of other institutions pursuing advanced work, when the applicants are not candidates for a degree. See page 52.

[For details as to subjects and methods of admission see pages 33-34.

For admission to the Freshman class and for admission to advanced standing from other colleges and universities communications should be addressed to the Registrar. See pages 33-34.

For admission as special students, communications should be addressed to the Director of the College of Civil Engineering. See pages 52, 53.

*For students from the State of New York, this requirement is equivalent to 12 counts on the Regents' scale.

ENTRANCE REQUIREMENTS TO ALL ENGINEERING COURSES IN AND AFTER 1906.

Special attention is called to the 1906 entrance requirements to all engineering courses (including Civil Engineering), Mechanical Engineering, Electrical Engineering, Marine Construction, and Railway Mechanical Engineering), as stated below. The 1906 entrance requirement for these courses is the equivalent of and almost identical with Group C of the entrance requirements to the Course in Arts (see page 80.)

In and after 1906 the following subjects will be required for admission to all engineering courses : English, History*, Plane Geometry, Elementary Algebra, Solid Geometry, Advanced Algebra, Plane Trigonometry, Spherical Trigonometry and any *one* of the *three* following groups, A, B, or C.

A. Any two of the three following (a, b, c.) : (a) Advanced German, (b) Advanced French, (c) Advanced Spanish.

B. Advanced German, Elementary French or Elementary Spanish, and any *one* (if not already offered) of the following entrance subjects or groups of subjects numbered 12a-21 (see pages 39-49) ; (12a) Elementary French, (12a and b) Advanced French, (13a) Elementary Spanish, (13a and b) Advanced Spanish, (14 and 14a) Latin Grammar and Caesar, (14b and 14c) Latin Composition and Cicero, (14d), Virgil, (15 and 15a) Greek Grammar and Xenophon, (15b and 15c) Greek Composition and Homer, (16) Physics, (17) Chemistry, (18) Botany, (19) Geology, (20) Zoology, (21) Drawing.

C. Advanced French, Elementary German or Elementary Spanish, and any *one* (if not already offered) of the following entrance subjects or groups of subjects numbered 11a-21 (see pages 39-49) : (11a) Elementary German, (11a and b) Advanced German, (13a) Elementary Spanish, (13a and b) Advanced Spanish, (14 and 14a) Latin Grammar and Caesar, (14b and 14c) Latin Composition and Cicero, (14d) Virgil, (15 and 15a) Greek Grammar and Xenophon, (15b and 15c) Greek Composition and Homer, (16) Physics, (17) Chemistry, (18) Botany, (19) Geology, (20) Zoology, (21) Drawing.

* One of the following : (1) American (including Civil Government), (2) English, (3) Ancient (to 814 A. D.), (4) Mediæval and Modern European (from 814 A. D.)

For admission to the graduate work, communications should be addressed to the Dean of the University Faculty. See pages 64-72.]

DEGREES.

First Degree.

The degree of *Civil Engineer (C.E.)*, is conferred upon such candidates as may successfully complete the four-year undergraduate course (see page 348) and present a satisfactory thesis, upon the recommendation of the faculty of the *College of Civil Engineering* to the *Board of Trustees*.

Graduate Courses and Advanced Degrees.

Graduate courses may be pursued by resident and non-resident graduates under the regulations mentioned on pages 66-74. Such courses are also open to graduates of any institution having an equivalent curriculum, when such graduates are accepted as candidates by the Faculty of this College. All graduate students are under the jurisdiction of the University Faculty.

The degrees of Master of Civil Engineering (M.C.E.), and Doctor of Philosophy (Ph.D.), are conferred after the conditions are fulfilled which are detailed on pages 71, 72.

For fellowships and scholarships see pages 58-63.

PRIZES.

The *Fuertes Medals*, founded by Professor E. A. Fuertes and consisting of two gold medals, each of the value of one-half the amount of the income provided by the endowment fund will be awarded under the following conditions :

One of these medals will be awarded annually by the University Faculty to that student of the College of Civil Engineering who may be found, at the time of graduation, to have maintained the highest degree of scholarship in the courses of his college, provided he has been in attendance in the University for at least two years ; and the other medal will be awarded annually by the Faculty to that graduate of the College of Civil Engineering who may write a meritorious paper upon some engineering subject tending to advance the scientific or practical interests of the profession of the civil engineer. It is desired that papers be presented on or before April 15th. If a paper is submitted in printed form, it will not be received if it has been printed earlier than the next preceding April 15th.

Neither medal shall be awarded unless it appears to the Faculty of

the College of Civil Engineering that there is a candidate of sufficient merit to entitle him to such distinction. Candidates will be nominated to the University Faculty by the College of Civil Engineering annually.

When no medal is awarded, the money thus left unexpended shall be added to the principal of the Fuertes fund; or it may, at the discretion of the Board of Trustees, be given to aid needy and meritorious students of any college or department of the University.

A FOUR-YEAR COURSE LEADING TO THE DEGREE OF CIVIL ENGINEER.

<i>Freshman Year.</i>	No. Course.	1st Term.	2d Term.
Analytics	2	4	-
Differential Calculus	2	1	2
Integral Calculus	2	-	3
Chemistry or Linear and Freehand Drawing, Lettering and Topography	1 or { 1, 2, 6	6	-
Linear and Freehand Drawing, Lettering and Topography or Chemistry	{ 1, 2, 6 or 1	-	6
Physics	2	5	5
Land Surveying	10	-	3

In addition to the above the required Drill and Gymnasium must be taken.

<i>Sophomore Year.</i>	No. Course.	1st Term.	2d Term.
Dendrology	3	2	-
Geology	10	2	-
Geology	30	1	3
Descriptive Geometry	8	5	-
Mechanics	20	5	5
Engineering Laboratory	22	2	2
Materials of Construction	25	-	5
Lettering, Tinting and Shading	4	1	1
City Surveying	11	-	2

<i>Junior Year.</i>	No. Course.	1st Term.	2d Term.
Political Economy	51	3	3
Railroad Engineering	60	4	4
Structural Design	71	4	5
Hydraulics	23	5	-
Hydraulic Laboratory	40	-	1
Municipal Engineering	52	2	5
Field Construction (in alternate years)	75	-	1

During vacation.

Geodetic and Topographic Surveys Course 15, 4 hours.

<i>Senior Year.</i>	No. Course.	1st Term.	2d Term.
Stereotomy and the Masonry Arch.....	72	(or 3)	3
Geodesy and Astronomy	13	5	-
Geodetic Laboratory	14	-	1
Cartography	16	-	2
Electrical Engineering	(E.E.) 11	4	-
Steam Machinery	(M.E.) 10	4	-
Engineering Problems	29	-	3
Specifications and Contracts	90	-	2
Field Construction (in alternate years)....	75	-	1
<i>Senior Year.</i>	No. Course.	1st Term.	2d Term.
* Elective	—	{ 5 or 3	3 5
Thesis.....	—	—	—

NOTE.—In 1904-5 cement laboratory to count $\frac{1}{2}$ hour will replace $\frac{1}{4}$ hour of the Elective during the first half-year.

Thesis.

The thesis is intended to demonstrate the ability of the student for independent investigation, or his capacity to apply the fundamental principles acquired in his course to the study of some special problem related to Civil Engineering. The latest date for announcing the subject, which is to be approved by the Director of the College, is December 1. The plan of work should be submitted for approval to the professor having charge of the subject, to whom also regular reports are to be made showing the progress of the investigation. The latest date for presenting the completed thesis is June 1.

A Six-Year Course Leading to the Two Degrees A.B. and C.E.

Juniors and seniors in good standing in the College of Arts and Sciences are allowed, with the permission of the Faculty of Arts and Sciences and with the consent of the Faculty concerned in each case, to elect studies in other colleges, which shall count towards graduation in

* All electives must be chosen by the student at the beginning of the year with the previous approval of the Director. The College reserves the right to withdraw any elective course which is not chosen by a sufficient number of students. The electives include Courses 17, 18, 24, 31, 32, 41, 42, 43, 54, 55, 57, 61, 73, 74, 80 and 81. Students in this College desiring to take work in the Dynamo Laboratory (Physics, 4) are first required to take certain preparatory experiments in the Junior Laboratory (Physics, 3), for which a credit of 2 hours will be given, after which they will be permitted to register in Physics 4 for any number of hours that may be desired. The work in Physics 3 consists of the same class of electrical experiments as is required in electrical engineering. In Chemistry, Courses 18 and 66 are recommended; and in Medicine, Course 43.

the College of Arts and Sciences, but the sum total of hours so elected must not exceed the number required for one year's work in the respective colleges, nor exceed nine hours per week in any term.

In accordance with this provision the following suggestion is given for a six-year course leading to the degrees of A.B. and C.E. Subjects in italics are those common to the courses for both degrees.

<i>Freshman Year.</i>	No. Course.	1st Term.	2d Term.
<i>Analytical Geometry</i>	2	4	-
<i>Differential Calculus</i>	2	1	2
<i>Integral Calculus</i>	2	-	3
<i>Dendrology</i>	3	2	-
<i>Chemistry or Drawing</i>	-	6	-
<i>Drawing or Chemistry</i>	-	-	6
<i>Elective in Arts and Sciences (Maximum)</i>	4	7	-
<i>Drill</i>	-	2	2
<i>Sophomore Year.</i>	No. Course.	1st Term.	2d Term.
<i>Physics</i>	I	4	4
<i>Geology</i>	10	2	-
<i>Geology</i>	30	1	3
<i>Descriptive Geometry</i>	C.E. 8	5	-
<i>Elective in Arts and Sciences (Maximum)</i>	6	II	-
<i>Junior Year.</i>	No. Course.	1st Term.	2d Term.
<i>Political Economy</i>	51	3	3
<i>Mechanics</i>	20	5	5
<i>Engineering Laboratory</i>	22	2	I
<i>Land Surveying</i>	10	-	3
<i>Elective in Arts and Sciences (Maximum)</i>	8	6	-
<i>Senior Year.</i>	No. Course.	1st Term.	2d Term.
<i>Materials of Construction</i>	25	-	5
<i>Engineering Laboratory</i>	22	-	I
<i>Lettering, Tinting and Shading</i>	4	I	I
<i>City Surveying</i>	II	-	2
<i>Elective in Arts and Sciences</i>	17	-	9
The completion of the above courses will lead to the degree of A.B.			
<i>Fifth Year.</i>	No. Course.	1st Term.	2d Term.
<i>Railroad Engineering</i>	60	4	4
<i>Structural Design</i>	71	4	5
<i>Hydraulics</i>	23	5	-
<i>Hydraulic Laboratory</i>	40	-	I
<i>Municipal Engineering</i>	52	2	5
<i>Field Construction (in alternate years)</i>	75	-	I
<i>Elective</i>	-	3	3
During vacation.			
<i>Geodetic and Topographic Surveys</i>	Course 15, 4 hours.		

<i>Sixth Year.</i>	No.	Course.	1st Term.	2d Term.
Stereotomy and the Masonry Arch	72	(or 3)	3	
Geodesy and Astronomy	13	5		-
Geodetic Laboratory	14	-		I
Cartography	16	-		2
Electrical Engineering	E.E. 11	4		-
Steam Machinery	M.E. 10	4		-
Engineering Problems	29	-		3
Specifications and Contracts	90	-		2
Field Construction (in alternate years)	75	-		I
Elective		{ 5 or 3		3 5
Thesis		-		-

The completion of the above additional courses will lead to the degree of C.E.

Students desiring to take both degrees of A.B. and C.E. are recommended to complete the plans of their courses with the advice of the Deans of the Faculties concerned.

The student must satisfy the entrance to the Course in Arts provided he wishes to register in the above six-year course leading to the degrees of Bachelor of Arts and Civil Engineering.

Courses of Instruction.

The number following the names of instructors refer to the rooms in Lincoln Hall.

Drawing.

1. **Linear and Freehand Drawing.** Elementary exercises to develop facility in the use of the instruments. Selected geometrical problems. Cross-sectioning. Shading with the right line pen and the bow pen. Isometric drawings. Tracing. Sketching from models. Six hours per week. Courses 1, 2 and 6 will be given in each half-year. First half-year. Section *a*, T., 11-1, 2-5; W., 10-1; Th., 11-1, 2-5; F., 9-12; S., 11-1. Section *b*, M., 10-12, 2-4½; T., 10-1; W., 2-4½; Th., 10-1; F., 2-4; S., 10-1. Second half-year. Section *c*, M., 10-1; T., 2-5; W., 2-4½; Th., 11-1, 2-5; F., 10-1, 2-4½. Assistant Professor PARSON and Mr. RUSSELL, 23, 26, 31.

2. **Lettering.** The form and proportions of standard letters. Details of construction. Methods of spacing. Laying out titles. Drawing, six hours per week. Assistant Professor PARSON, 23.

4. **Lettering, Tinting and Shading.** Freehand lettering for working drawings, and for general office work. Rendering in water color, sepia, and charcoal. Drawing three hours per week throughout

the year. Section *a*, M., 2-5. Section *b*, T., 2-5. Section *c*, F., 2-5. Section *d*, S., 8-11. Assistant Professor PARSON, 23.

6. Pen and Colored Topography. Topographical signs. Hill shading by different methods. Representation of surface forms by contours, and in color, pencil and charcoal. Topographic maps. Copying, enlarging, and reducing maps. Drawing, six hours per week. Assistant Professor PARSON, 23.

8. Descriptive Geometry. For students in Civil Engineering. A study of the representation of lines, planes, surfaces, and solids, and of their relations; tangencies, intersections and developments; warped surfaces; shades, shadows, and perspective. The text-books are MacCord's Descriptive Geometry and Hill's Shades, Shadows, and Perspective. The original problems are intended to be illustrations and applications of the principles given in the text-books. First half-year. Lectures, three hours per week. M., W., F., 8. Assistant Professor OGDEN, 10. Original problems, six hours per week. Sections *a* and *b*, T., Th., S., 8-10. Section *c*, M., W., F., 2-4. Section *d*, T., Th., S., 11-1. Assistant Professor OGDEN, Mr. POND and Mr. TILDEN, 23, 42.

9. Descriptive Geometry. For students in Mechanical and Electrical Engineering and in Architecture. Lectures, one hour per week throughout the year. Sections A, B, and C, F., 9; sections D, E, and F, S., 10. Assistant Professor OGDEN, Library lecture room. Original problems, three exercises of one hour each per week. Section A, M., W., F., 11. Section B 1-2, M., W., F., 11; section B 3-6, M., W., F., 10. Section C 1-2, M., W., F., 9; section C 3-6, T., Th., S., 11. Section D 1-2, M., W., F., 12; section D 3-6, T., Th., S., 9. Section E, M., W., F., 12. Section F, M., W., F., 8. Architects, M., W., F., 9. Mr. POND and Mr. BOOTHROYD, 42, 31.

Surveying and Geodesy.

10. Land Surveying. An elementary study of surveying methods and instruments. The recitations are supplemented by lectures. The field work affords practice in the use of the chain and tape, in making farm surveys with the compass and transit, and in leveling. The field practice is preceded by exercises devoted to a careful study of each instrument. Johnson's Theory and Practice of Surveying is used as a text-book. Second half-year. Lectures and recitations, two hours per week. Section *a*, T., Th., 10; sections *b* and *c*, T., Th., 9; section *d*, M., W., 9; sections *e* and *f*, M., W., 10; section *g*, F., 10; S., 11. Assistant Professor McCUAULAND and Mr. RUSSELL, 24, 32, 43, 45. Examination of surveying instruments, two hours per week.

Section *a*, S., 9-11; section *b*, S., 11-1; section *c*, T., 10-12; section *d*, Th., 10-12; section *e*, T., 2-4; section *f*, Th., 2-4; section *g*, F., 2-4. Mr. POND and Mr. BOOTHROYD. Field work, six hours per week. Section *a*, S., 8-11, 11-2; section *b*, F., S., 2-5; section *c*, T., Th., 2-5. Assistant Professor McCUAUSTLAND, Mr. POND, Mr. BEYER, Mr. RUSSELL, Mr. STEWART, and Mr. BOOTHROYD.

11. **City Surveying.** Accurate methods of measuring distances and angles; grading and contouring; street grading; city surveys and monuments; mining survey methods. Reference books: Pence and Ketchum's Surveying Manual, Raymond's Plane Surveying, and Johnson's Theory and Practice of Surveying. Second half-year. Recitations, one hour per week. Section *a*, T., 10; section *b*, W., 10; section *c*, Th., 10; section *d*, F., 10. Assistant Professor McCUAUSTLAND and Mr. TILDEN, 32, 34. Field work, four hours per week for the latter half of the second half-year. Section *a*, M., 2-6; section *b*, W., 2-6. Assistant Professor McCUAUSTLAND, Mr. BARNES, and Mr. TILDEN.

12. **General Astronomy.** For students in the College of Arts and Sciences. Descriptive and physical. A study of forms, dimensions, motions, constitution, and evolution of the heavenly bodies and of their mutual relations. Necessary before taking up advanced or special work in astronomy. Requires a knowledge of Trigonometry and Physics. Lectures two hours per week. T., Th., 10, *Lincoln* 45. Mr. LELAND.

13. **Geodesy and Astronomy.** Astronomy. The lectures and recitations cover the description and theory of the adjustments and methods of use of the field and observatory instruments of the college, including transits, zenith telescopes, altazimuths, and sextants, together with the auxiliary apparatus needed, such as clocks, chronographs, collimators, etc. Observations and computations are made to determine time, latitude, longitude and azimuth, by different methods. Lectures, night observations and computations.

Geodesy. Historic development. Construction and use of instruments with special reference to the elimination of instrumental errors. Field work of the triangulation, including reconnaissance, signals, methods of observing, etc. Precise leveling. Methods of sounding. Figure of the earth, with the development of the formulas required in the reduction of surveys, "L.M.Z." work, map projections and the location of geodetic lines. Development of the method of least squares, with application to survey problems, to the adjustment of a triangulation, and to astronomical work. Mimeograph notes are employed. Recitations and lectures, five hours per week. Sections *a*

and *b*, daily except Sat., 12 ; section *c*, daily except Sat., 9. Hours for observations to be arranged. Professor CRANDALL, Mr. LELAND, and Mr. BEYER, 24, 43.

14. **Geodetic Laboratory.** Determination of instrumental errors and constants, and of observation errors. The following are examples of the problems given : Determination of the error of the zero point of a compass : graduation errors of a precise leveling rod, with a diagram for corrections according to the French system ; the temperature at which the 50 foot tape standard has its normal length ; comparison of results for azimuth by the solar compass and by direct observations, etc. Second half-year. Two and one-half hours per week. Section *a*, W., 2-4½ ; section *b*, Th., 2-4½. Professor CRANDALL and Mr. LELAND.

15. **Geodetic and Topographic Surveys.** Requires courses 10, 11 and 60. The work will be conducted from a camp near Dryden, N. Y., in continuation of a survey of the Fall Creek watershed begun in 1898. A triangulation is extended over the area as a tertiary system connected with the primary and secondary stations of the New York Survey. Latitude and azimuth observations are taken at one of the stations. A line of precise levels, referred to mean sea level by the Erie Canal bench marks and those of the U. S. Geological Survey, is carried along the valley. Transit stadia lines, connected with the triangulation stations, form the basis for the topography, and some plane-table practice is given in filling in the details. The maps are plotted to a scale of 400 feet to an inch from the coördinates of the stadia lines, adjusted to the triangulation, and 10-foot contours are drawn. Field work, computations and drawings, daily, for four and one-half weeks in the summer vacation, beginning June 9. Professor CRANDALL, Assistant Professor McCaustland, Mr. Barnes and Mr. LELAND.

16. **Cartography.** Computations and reductions of the astronomical and geodetic data obtained on the Fall Creek survey in June, 1904, together with a map of the triangulation and topography, using 20-foot contours. Second half-year. Computations and drawing, six hours per week. Section *a*, F., S., 8-11 ; section *b*, M., T., 2-5, Professor CRANDALL and Mr. LELAND, 26, 23.

17. **Advanced Geodesy and Astronomy.** A special course of reading as may be arranged : e.g., Helmert's Higher Geodesy, Chauvenet's Astronomy. Second half-year. Five hours per week. Daily, except S., 11. Professor CRANDALL.

18. **Geodetic and Astronomical Laboratory.** The laboratories and observatory are well equipped for the study of standards of length,

dividing engines, micrometer microscopes, standard thermometers, pendulum observations, investigations of instruments, and astronomical observations with portable instruments. Second half-year. Seven and one-half hours per week. M., T., 2-5½. Professor CRANDALL, and Mr. LELAND, 9, 24.

19. **Elementary Practical Astronomy.** For students in the College of Arts and Sciences. Observation work Urmography. Use of the equatorial telescope. Sketching. Must be preceded or accompanied by course 12. Second half-year. Counts one hour. Friday evenings, at *Fuertes Observatory*. Mr. LELAND.

Applied Mechanics and Hydraulics.

20. **Mechanics of Engineering.** No student is admitted to this course who has not successfully pursued University courses in analytic geometry and in the differential and integral calculus. A study of the principles and applications to engineering, of the mechanics of solids; as relating to the mutual actions, motions, pressures, strength, stiffness, and resilience of the members of structures and machines. Original problems form a prominent feature. Statics of a material point and of rigid bodies. Centers of gravity. Chains and cords. Dynamics (kinetics) of a material point. Impact. Virtual velocities. Centrifugal and centripetal forces. Pendulums. Moments of inertia of plane figures and of rigid bodies. Dynamics (kinetics) of rigid bodies. Work. Power. Energy. Fly-wheels. Friction. Graphical statics of mechanism. Dynamometers. General theorem of work and energy applied to machines. Stresses and strains. Tension. Shearing. Compression. Torsion. Flexure. Elastic curves. Safe loads. Columns. Text-books; Church's Mechanics of Engineering, and Notes and Examples in Mechanics. (At the end of the year nearly three weeks are devoted by students in Sibley College courses to topics in Hydrostatics and Hydraulics.) Lectures and recitations, daily except S., throughout the year. For students in civil engineering. Sections *a* and *b*, at 11; sections *c* and *d*, at 9; section *e*, at 12. For students in Sibley College, four sections at 8, two at 10, four at 11, one at 2, and one at 3. Professor CHURCH, Assistant Professors MOTT, and JOHANNSEN, and Messrs. BARNES, SMITH, TILDEN, BERRY, BEYER and STEWART, 10, 24, 32, 34, 43, 45.

21. **Mechanics.** (Resistance and elasticity of materials. For students in Architecture.) Tension, compression, and shearing. Riveted joints. Cantilevers and simple beams. Restrained beams. Safe loads. Elastic curves. Deflections. Beams of uniform strength.

Columns. Combined stresses. Temperature stresses. Horizontal shear in beams. Text-book: Merriman's Mechanics of Materials. First half-year. Lectures and recitations, three hours per week. M., W., F., 9. Assistant Professor McCASTLAND, 46.

22. Engineering Laboratory. Use of engineers' computing devices, viz.: The common slide rule, the Fuller spiral slide rule, Thacher calculating instrument, and Goodchild chart. Use of the planimeter, adjustments and use of the cathetometer. Experiments involving the parallelogram of forces (funicular polygons.) Determination of specific gravity with the Jolly balance. Centers of gravity of plates and prisms (models.) Efficiency of the inclined plane. Systems of levers. Harmonic motion of masses, etc. Experiments in testing materials. Use of the 50,000-lb. Olsen machine in tensile tests of bars of iron and steel. The Thurston and Riehlé torsion machines; determination of its constants and tests of specimens. Flexure of steel bars; deflections and modulus of elasticity. Elongation of steel wires with observations by cathetometer. Breaking tests of wooden columns. Moments of inertia of beam sections by graphic and analytical methods. Use of the Kew magnetometer. Determination of specific gravity, fineness, soundness, expansion, activity, time of set and strength, of cements. Study of sands. Studies of proportions and kinds of materials to be used in structures when cement is employed. First half-year. Five hours per week. (Seven hours in January.) Section *a*, M., W., 2-4½; section *b*, T., Th., 2-4½; section *c*, M., W., 11-1½; section *d*, T., Th., 11-1½; section *e*, F., 9-11½; S., 10-12½. Second half-year. Seven hours per week for eight weeks, and an average of two hours per week for the remainder of the half-year. Section *a*, M., W., 2-5½; section *b*, T., Th., 2-5½; section *c*, M., W., 11-2; section *d*, T., Th., 10-1½; section *e*, F., 8-11; S., 10-1½. Professor CHURCH, Assistant Professor McCASTLAND, and Messrs. SMITH, BERRY, BEYER, and STREWART, 8, 14, 15, 4.

23. Hydraulics. (With topics in hydrostatics and pneumatics.) Fluids at rest. Hydrostatic pressure. Manometers. Strength of pipes. Pressure of water against walls and dams. Earth pressure. Immersion and flotation. Compressed air motors. Air compressors. Gas engines. Barometric leveling. Steady flow of liquids through pipes and orifices, and over weirs. Fluid friction. Losses of head. Time of emptying vessels. Steady flow of water in open channels. Kutter's formula. Steady flow of gases through pipes and orifices. Impulse and resistances of fluids. The Pelton water motor. Backwater. Overshot, breast, and undershot water wheels. Theorem for

flow in a revolving pipe. Turbines and reaction wheels. Theory of turbine testing. Text-books: Church's Mechanics of Engineering; and Hydraulic Motors. First half-year. 'Lectures and recitations, daily except S. Sections *a* and *c*, at 12. Section *b*, at 9. Professor CHURCH and Assistant Professor MOTT, 34, 32.

24. **Advanced Mechanics.** Continuous beams. Curved beams. Special cases of flexure. Problems in the mathematical theory of elasticity. Thick hollow cylinders and spheres. Plates. Castigliano's Theorem of least work. Elastic potential and its derivatives. Numerous special problems in the mechanics of fluids. Special theories of hydraulic motors. Centrifugal pumps. Hydraulic brakes. Accumulators. Pressure engines, etc. Recitations. First half-year. Daily except S., II. Professor CHURCH, 8.

25. **Materials of Construction.** This course embodies the study of the methods of manufacture of iron and steel, and of cement; the study of the physical and mechanical properties of all of the more important materials of construction and the methods of testing; an examination and comparison of the results of actual tests. The question of the determination of safe unit stresses for each class of material, and the data necessary for such determination will be constantly urged upon the attention of the student. Second half-year. Five hours per week. Daily except Sat. Section *a*, at 12, Section *b*, at 9. Sections *c* and *d*, at 8. Section *e*, at 11. Assistant Professors McCARTLAND and JOHANNSEN, and Mr. TILDEN, 34, 45, 32.

29. **Engineering Problems.** The object of this course is to provide additional practice in using the principles and methods of Applied Mechanics, both of solids and fluids. A series of problems, such as occur in ordinary engineering practice, and covering a wide range of topics, is given out for solution. Second half-year. Computations and reports; nine hours per week. Section *a*, M., 8-10; T., 8-11; W., 8-11. Section *b*, Th., 8-11; F., 8-10; S., 8-11. Professor CHURCH and Assistant Professor MOTT, 23.

31. **Hydraulic Constructions.** The study of modern hydraulic constructions: Dams, reservoirs, canals, levees, wharves, docks, etc. Structures relating to water power and irrigation. River and harbor works. Second half-year. Lectures with collateral reading and reports; five hours per week. Daily except S., II. Assistant Professor MOTT, 46.

[32. **Water Works.** The design, construction, operation and management of municipal water supply systems. Second half-year. Lectures and recitations, five hours per week for ten weeks. Daily except Sat., II. Professor ——, 29.]

Experimental Hydraulics.

40. **Hydraulic Laboratory.** Reduction of hydraulic data. Experiments on the flow of water over weirs, and through orifices and pipes. Rating of current meters. Second half-year. Two and one-half hours per week. Section *a*, T., 8-II. Section *b*, W., 8-II. Section *c*, Th., 8-II. Section *d*, S., 8-II. Section *e*, M., 8-II. Section *f*, F., 8-II. Dr. SCHODER, 3.

41. **Experimental Hydraulics.** Practical problems in hydraulic observation. First half-year. Three afternoons per week. Dr. SCHODER.

42. **Experimental Hydraulic Motors and Pumps.** The determination of efficiency, horse power, and capacity of hydraulic machinery. Either first or second half-year. Hours to be arranged. Dr. SCHODER.

43. **Advanced Experimental Hydraulics.** Advanced work on a large scale upon the flow and measurement of water. Either first or second half-year. Work limited to the open season. Dr. SCHODER.

Municipal and Sanitary Engineering.

52. **Municipal Engineering.** Sewerage and sewage disposal. First half-year. Lectures and recitations, two hours per week. M., W., 10. Assistant Professor OGDEN, 34. Water works, including the computation of rainfall, run-off and storage, the amount of water necessary for domestic and municipal purposes, sources of supply, methods of collection, storage and distribution. Second half-year. Lectures, five hours per week for first half of term. Daily except S., 12. Assistant Professor MOTT, 32. Street pavements. Street cleaning. Garbage collection and disposal. Second half-year. Lectures, five hours per week for second half of term. Daily except S., 12. Assistant Professor OGDEN, 32.

54. **Design of Sewerage Works.** This course gives a detailed view of the field of sewerage design and construction, and of sewage disposal. Twenty-four lectures are devoted to sewage disposal, describing the most modern plants of Europe and of this country with the principles involved and a comparison of their relative efficacy of treatment. Twenty-two lectures relate to the question of design, considering the rainfall, run-off and all matters involved in the separate system. Fourteen lectures treat of construction, with details of manholes, siphons, gate screens, and all topics relating to foundations, piers, brick, concrete or other construction. The rest of the course deals with the general questions relating to municipal engineering.

Second half-year. Lectures, five hours per week. Daily except S., II. Assistant Professor OGDEN, 2.

55. **Sanitary Laboratory.** This course offers a practical demonstration of some of the topics considered in courses 52 and 54. Reports are required on sand analyses, on coefficients of friction of water in sand, on the examination of plumbing installations, and on the study of ventilating plants. Preparation of culture media and of cultures of typical bacteria. Measurements of velocities and grades in the city sewers, and a study of their inter-relation with sizes of pipe and depths of flow. Second half-year. Seven and one-half hours per week. M., T., 2-5:45. Assistant Professor OGDEN, 2.

57. **Testing Materials.** Open only to students who have completed Course 22 or its equivalent. Special work will be arranged for students electing this course, upon consultation with the professor in charge. Tests may be made upon full-sized sections in iron and steel; upon wooden columns, beams, and trusses; standard tests of paving brick and blocks; tests of road metal according to the standards of the Massachusetts Highway Commission; extended series of tests upon cements, cement mixtures and concrete, with and without steel reinforcement; tests of brick piers. Marten's Testing of Materials and Johnson's Materials of Construction are used as reference works. First half-year. Seven and one-half hours per week. T., Th., 2-5:45. Assistant Professors McCARTLAND and JOHANNSEN, 4, 10, 15.

Railroad Engineering.

60. **Railroad Engineering.** The field work includes the laying out of curves, turnouts, etc., and the staking out of structures, in addition to making the reconnaissance, preliminary and location surveys for about five miles of railway in the Inlet Valley. The work is cross-sectioned and the positions of the structures determined. The drawing includes a map and a profile of the located line and a plan for one or more of the structures. The earthwork is computed from the cross-sections, and complete estimates are made of quantities and costs, including all structures. The recitations and lectures take up the field problems, the computation of earthwork, the cost of earthwork, sub-grade and track structures, track work, and the economics of railroad location and operation. Searle's Field Engineering; Crandall's Transition Curve, Earthwork Tables, and Mimeograph Notes on Railroad Engineering; and Wellington's Economic Theory of Railway Location, form the basis of the work. First half-year. Recitations, lectures, field work and drawing, ten hours per week. Section a, M., W., 2-5; alternate, S., 8-6. Section b, T., Th., 2-5;

alternate, S., 8-6. Second half-year. Lectures and recitations, three hours per week. Section *a*, T., Th., S., 11. Section *b*, M., W., F., 10. Section *c*, T., Th., S., 10. Drawing, six hours per week for six weeks. Section *a*, W., Th., 2-5. Section *b*, M., T., 2-5. Professor CRANDALL, Mr. BARNES, and Mr. TILDEN, 44, 43, 26.

61. Advanced Railroad Engineering. This course is mainly along the line of operation and maintenance. The subjects treated are : Track work and accessory structures ; improvement in gradients and alinement ; sorting yards ; terminals ; block signaling and interlocking ; street and electric roads ; rapid transit ; and railroad management. First half-year. Reading, lectures, and recitations, five hours per week. Daily, except S., 11. Professor CRANDALL, 29.

Bridge Engineering.

71. Structural Design. Structural Details. The lectures treat of the forms and strength of joints and fastenings used in heavy framing ; of the design and construction of beams, columns, roof trusses, and other wooden or combination structures, including some cast and wrought-iron details ; and of the results of timber tests and the determination of safe unit stresses. The recitations cover the graphic analysis of simple beams and roof trusses in Chapters I and II of Merriman and Jacoby's Roofs and Bridges, Part II. The computations and drawing include complete detail designs and working drawings of two joints to resist large tensile stresses, of a deepened beam, and of a wooden roof truss for given specifications. First term for eleven weeks. Lectures and recitations two hours per week. T., Th., 10. Professor JACOBY, 34. Computation and drawing, six hours per week. Section *a*, T., Th., 2-5. Section *b*, M., W., 2-5. Professor JACOBY and Assistant Professor JOHANSEN, 26.

Bridge Stresses. Analytic and graphic methods. Principal modern forms of simple trusses. Dead, live, snow and wind loads. Counter bracing. Uniform panel loads. Excess panel loads. Text-book : Merriman and Jacoby's Roofs and Bridges, Parts I and II. First half-year. Recitations and lectures, four hours per week for four weeks. Section *a*, M., W., 2 ; T., Th., 8. Section *b*, M., W., 3 ; T., Th., 10. Section *c*, M., W., 8 ; T., Th., 2. Section *d*, M., W., 9 ; T., Th., 3. Professor JACOBY and Assistant Professor JOHANSEN, 34, 44.

Bridge Stresses, continued. Locomotive Wheel Loads. Construction and use of load and moment diagrams. Multiple systems. Long span trusses. Plate girders. Evolution of bridge trusses. Classification. Solution of assigned problems. Second half-year. Recitations and lectures, five hours per week for six weeks. Section *a*, M.,

T., 2; W., Th., S., 8. Section *b*, M., T., 3; W., Th., S., 9. Section *c*, M., T., F., 8; W., Th., 2. Section *d*, M., T., F., 9; W., Th., 3. Professor JACOBY and Assistant Professor JOHANNSEN, 34, 46, 32, 44.

Bridge Design. Lectures and recitations on the design of plate girders, riveted and pin bridges. Details. Economic proportions. Analysis of weights. Complete computations and drawings for the design of a steel railroad bridge of short span. Text-book: Merriman and Jacoby's Roofs and Bridges, Part III. Second half-year. (Following Bridge Stresses). Lectures and recitations. One hour per week. Section *a*, T., 3. Section *b*, M., 3. Professor JACOBY and Assistant Professor JOHANNSEN, 32, 34. Computations and drawings, twelve hours per week, Section *a*, M., W., 8-11, 2-5. Section *b*, T., Th., 8-11, 2-5. Professor JACOBY and Assistant Professor JOHANNSEN, 26.

72. Stereotomy and the Masonry Arch. Two problems in stereotomy, all templet dimensions to be checked by computation; a review or the complete design of a right arch, either of masonry and steel-concrete construction, including stability of arch and foundations, architectural features, falsework, bill of materials and cost. First half-year. Lecture, one hour per week. Drawing and computations, six hours per week. M., 9; W., F., 9-12. Professor JACOBY and Assistant Professor JOHANNSEN, 24, 26. Second half-year. M., 10, and W., 2-5; Th., 8-11. Professor JACOBY and Assistant Professor McCASTLAND, 34, 42.

73. Bridge Engineering. Determination of the loading and stresses in continuous girders and trusses, draw-bridges, cantilever bridges, suspension bridges, and metallic arches. The metallic arches include arched ribs and trussed arches of three, two and no hinges, respectively, both for roofs and bridges. Analytic and graphic methods. Study of the designs of typical examples of these classes of structures. Text-book: Merriman and Jacoby's Roofs and Bridges, Part IV. First half-year. Recitations, five hours per week. Daily, except S., 11. Professor JACOBY, 46.

[**74. Masonry and Foundations.** Cofferdams, cribs, sheet piling, metal cylinder piers, pumping and dredging, the foundation, and the location and design of piers. Text-book for the preceding topics: Fowler's Cofferdam Process for piers. Piles and pile driving. Pneumatic caissons. Open caissons. Caisson sinking. Deep and difficult foundations. Foundations of buildings; pile, caisson, steel, concrete. Underpinning. Examination of selected modern examples described and illustrated in the Engineering periodicals and transactions. Build-

ing stone. Second half-year. Recitations and written reports, five hours per week. Daily, except S., II. Professor JACOBY, 8.]

75. **Field Construction.** The erection of girder bridges and viaducts; of bridges on trestle falsework and on special supports; of cantilever bridges; of movably erected and suspension bridges; of steel buildings and of long span roof trusses. The framing and details of steel buildings. Equipment of tall buildings. Underpinning and reconstructing buildings. Moving and razing buildings and other structures. Foundations of buildings and of engineering structures. Second half-year. Lectures, one hour per week. Hours to be arranged. Non-resident lecturer. FRANK W. SKINNER.

Testing Materials. See Municipal and Sanitary Engineering.

Mining.

80. **Mining.** A general course, introductory to the subject of mining engineering, covering methods of working various mines. General problems of ventilation, lighting, drainage, haulage and hoisting, timbering, etc., specifically.

Anthracite and Bituminous Coal Mining. Occurrence of coal, place of attacking seam, determination of character and extent of coal seams or beds. Coal cutters, conveyors, breakers, washers, and tipples. Visits are made to the mines in the Wilkes-Barre region, to inspect the actual operations of mining and of preparing the coal for the market. First half-year. Lectures and recitations, five hours per week. Daily, except S., II. Assistant Professor McCARTLAND, 44.

81. **Metal Mining and Milling.** Brief sketch of mining law. Location of mineral claims. Methods of opening veins. Shaft sinking and timbering. Mine timbering. Drills, drilling, blasting and explosives. Hydraulic mining of placer deposits. Dredge mining. Mine sampling and estimation of ore reserves. Milling and concentrating machinery. Crushers, stamp mills, amalgamators, vanners, jigs, concentrators, etc. Some laboratory practice is given in the use and adjustment of drills, air compressors, etc. The library contains most, if not all, the standard works on mining and mine engineering, and all the leading mining periodicals. These are largely drawn on for the regular class work. Second half-year. Lectures and recitations, five hours per week. Daily, except S., II. Assistant Professor McCARTLAND, 44, 8.

Specifications.

90. **Specifications and Contracts.** Synopsis of the law of contracts as applied to engineering construction. Study of typical contracts and specifications. Riparian rights, boundary lines, survey

descriptions, etc. Johnson's Contracts and Specifications is used as a text, and Wait's Law of Operations in Engineering Construction as a reference book. Second half-year. Lectures and recitations two hours per week. Section *a*, M., W., 12; Section *b*, T., Th., 12. Professor CRANDALL, 43.

Special and Graduate Courses.

Special Courses. All of the elective courses are suitable for graduate and advanced students, and may be taken by them in the regular classes. Other special courses will be arranged to suit the requirements of graduate students. These courses are intended to be pursued under the immediate direction of the professor in charge, the student being usually free from the restrictions of the class room and working either independently or in conjunction with others taking the same course.

SIBLEY COLLEGE

OF MECHANICAL ENGINEERING AND THE MECHANIC ARTS.

FACULTY.

JACOB GOULD SCHURMAN, A.M., D.Sc., LL.D., President.

ALBERT WILLIAM SMITH, B.M.E., M.M.E., Director of the College, Dean of the Faculty, and Professor of Mechanical Engineering.

B.M.E., Cornell University, 1878; M.M.E., 1886. Machinist and Contractor; Brown, Sharpe Mfg. Co., Providence, R. I., 1879-80. Machinist and Foreman Straight Line Engine Co., Syracuse, N. Y., 1880-83. Superintendent Kingsford Foundry and Machine Works, Oswego, N. Y., 1883-86. Fellowship Cornell University, 1886-87. Assistant Professor Mechanical Engineering, Sibley College, Cornell University, 1887-91. Professor Machine Design, University of Wisconsin, 1891-92. Professor Mechanical Engineering, Leland Stanford Jr. University, 1892-94. Draughtsman and Designer, Dixon Mfg. Co., Scranton, Pa., 1898-99. Engineer with Westinghouse, Church, Kerr & Co., 1900-02. Engineer with Westinghouse, Church, Kerr & Co., 1903 (Summer).

JOHN LEWIS MORRIS, A.M., C.E., Sibley Professor of Mechanic Arts. Emeritus.

ROLLA CLINTON CARPENTER, M.S., C.E., M.M.E., Professor of Experimental Engineering.

C.E., University of Michigan, 1875; M.E., Michigan Agriculture College, 1877; M.M.E., Cornell University, 1888. Assistant Engineer D. & B. C. R.R., 1875-6. Professor of Mathematics and Engineering; Superintendent of Mechanical Construction, Michigan Agriculture College, 1876-90. Consulting Engineer, Lansing Iron Works, 1885-91. Professor of Experimental Engineering, Sibley College, Cornell University, 1890. Judge of Machinery Exhibits, World's Fair, Chicago, 1893. Consulting Engineer, Ithaca Street Railroad, 1893. Consulting Engineer, Cortland Street Railroad, 1895. Consulting Engineer, Utica Belt Line R.R., Utica, N. Y., 1897. Consulting Engineer, Apple River Power Station, 1898. Consulting Engineer, Heiderberg Cement Co., 1899. Consulting Engineer, Great Northern Portland Cement Co., 1900. Judge of Exhibits, Pan American Exposition, Buffalo, 1901. Consulting Engineer, Cayuga Lake Portland Cement Co., 1901. Absent from University on leave; Consulting Engineer for Belleville Portland Cement Co., Toledo Portland Cement Co., Quaker Portland Cement Co., Mississippi Valley Portland Cement Co., Samuel Horner, Jr., Portland Cement Co., 1903.

HARRIS JOSEPH RYAN, M.E., Professor of Electrical Engineering.

M.E., Cornell University, 1887. Western Engineering Co., Lincoln, Neb., 1887. Instructor in Physics, Cornell University, 1888-9. Judge, Board of Awards, World's Fair, Chicago, 1893. United States Delegate, International Electrical Congress, Universal Exposition, St. Louis, Mo., 1904.

HERBERT WADE HIBBARD, A.B., A.M., M.E., Professor of Mechanical Engineering of Railways.

A.B., Brown University, 1886; M.E., Cornell University, 1891; A.M., Brown University, 1899. In shops of Rhode Island Locomotive Works, 1886-89. Mechanical Department Pennsylvania R.R., 1891-94. Mechanical Department Lehigh Valley R.R., 1894-95. Assistant Professor Machine Design and Locomotive Engineering, University of Minnesota, 1895-98.

FORREST ROBERT JONES, M.E., Professor of Machine Design.

M.E., Cornell University, 1888. Practical Engineering Work, 1884-8 (Summers). Designer and Experimenter with Thomas A. Edison, Orange, N. J., and North American Phonograph Co., of same place, 1888. With J. G. White & Co. and Edison General Co., also engaged in other practical engineering work, 1888-90. Professor Mechanic Arts, University of Tennessee, 1890-92. Professor Machine Design, University of Wisconsin, 1892-99. Professor of Drawing and Machine Design, Worcester Polytechnic Institute, 1899-03. Visited leading technical schools and many large industrial establishments in England, Germany and Switzerland, and the engineering collections in these countries, and France, 1902.

DEXTER SIMPSON KIMBALL, A.B., Professor of Mechanic Arts.

A.B., Leland Stanford Jr. University, 1896. Served apprenticeship with Pope & Talbot, Port Gamble, Wash., 1881-87. Machine Shop, Union Iron Works, San Francisco, 1887-93. Drafting Room, Union Iron Works, San Francisco, 1896-98. Designing Engineer for Anaconda Mining Co., Montana, 1898 (Summer). Assistant Professor of Machine Design, Sibley College, Cornell University, 1898-01. Works Manager, Stanley Electric Mfg. Co., Pittsfield, Mass., 1901-04.

GEORGE ROBERT McDERMOTT, Assistant Professor of Naval Architecture. In charge of the Department of Naval Architecture and Marine Engineering.

Graduated Andersonian Institute, Glasgow, 1878. Shops and Draughting Offices, 1880-83. Chief of Scientific and Designing Staff, 1884-86. Naval Architect and Assistant to Shipyard Manager, 1887-89. Clydebank Shipbuilding and Engineering Co. (John Brown & Co.), Clyde, Scotland. Naval Architect and Assistant to General Manager, Southampton Naval Works, England, 1890-91. Member of Technical Committee, U. S. Standard Registry of Shipping, 1895-1904. Designer of twin S. S. "Eastland," S. S. "Ravenscraig," and other important vessels on Great Lakes and coast.

CLARENCE EDWIN COOLIDGE, Ph.B., Assistant Professor of Machine Design.

Graduated Sheffield Scientific School, Yale University, 1895. In Shops of Pratt & Whitney Co., 1886-92. Designing with the Pope Tube Co., 1895-97. Designing with the Eddy Electrical Mfg. Co. Vacations spent in practical work, 1897-98. Instructor Department Mechanic Arts, Worcester Polytechnic Institute, 1898-99. Adjunct Professor of Drawing, Georgia School of Technology, 1899-01. Vacations spent in practical work, 1899-1900-01.

HENRY HUTCHINSON NORRIS, M.E., Assistant Professor of Electrical Engineering. Absent on leave.

M.E., Cornell University, 1896. Practical Work and Special Student, Johns Hopkins, Baltimore, 1891-92. Assistant Instructor in Electrical Engineering and had direct charge of Experimental Laboratory work covering all parts of electrical work, Johns Hopkins, Baltimore, 1892-94. Student in Sibley College, Cornell University, 1894-96. Instructor in Electrical Engineering, Sibley College, Cornell University, 1896-01. Assistant Professor in Electrical Engineering, Sibley College, Cornell University, 1901-03. Superintendent Electrical Railway Test Commission and Member of International Jury of Awards, I. P. E., Universal Exposition, St. Louis, Mo., 1904.

HERMAN DIEDERICHS, M.E., Assistant Professor of Experimental Engineering.

M.E., Cornell University, 1897. Assistant in Mechanical Laboratory, Sibley College, Cornell University, 1897-98. Instructor in Mechanical Laboratory, Sibley College, Cornell University, 1898-92. Assistant Professor of Experimental Engineering, Sibley College, Cornell University, 1902. Consulting Engineering and work of investigation: Boiler Tests, Rochester, N. Y., 1901; Boiler Tests, New York City, 179th Street Station, 1904; Engine Tests, New York City, 1903; Engine Tests, New York City, 179th Street Station, 1904; Engine Tests, Brooklyn, Millburn Station, 1904; Investigation of Cold and Hot Rolled Steel, Jones & Laughlin, Pittsburg, Pa., 1902; Tests of Reever Simple and Compound Engines, 1904.

WILLIAM NICHOLS BARNARD, M.E., Assistant Professor of Machine Design.

M.E., Cornell University, 1897. Assistant and Instructor in Machine Design, Sibley College, Cornell University, 1897-1900. Chief Draughtsman and Mechanical Engineer, Russell Engine Co., 1900-03.

CARL CLAPP THOMAS, M.E., Assistant Professor of Marine Engineering.

M.E., Cornell University, 1895. Globe Iron Works Company, Engineers and Shipbuilders. Draftsman, 1895-96; Assistant Engineer, 1896-97; Chief Engineer, 1897-98. Maryland Steel Company, Marine Department, Draftsman, 1898; Chief Draughtsman, 1899-1901. New York University, 1901-03. Professor Marine Engineering and Naval Architecture. Consulting Engineer New York Construction and Dry Dock Co., 1902-03. Moran Bros., Shipbuilders, 1902; design of special marine machinery. University of California, 1903-4; Instructor, Marine Engineering.

ADDAMS STRATTON MCALLISTER, M.M.E., Acting Assistant Professor of Electrical Engineering.

B.S. in E.E., Pennsylvania State College, 1898; M.M.E., Cornell University, 1901. Electrical Engineer, Bemidji White Coal Mining Co., Windber, Pa., Graduate Student, Cornell University, 1898-1901. Assistant in Physics, Cornell University, 1901-03. Instructor in Physics, Cornell University, 1903-04.

WALTER RAUTENSTRAUCH, Assistant Professor of Machine Design.

B.S., University of Missouri, 1902. Practical work and Engineer with Standard Steel Car Co., Pittsburg, Pa., 1900-02. Instructor University of Maine, 1902-03. Contracting work, 1903 (Summer). Instructor Machine Design, Sibley College, 1903-04.

VLADIMIR KARAPETOFF, C.E., Assistant Professor of Experimental Electrical Engineering.

C.E., Institute of Ways of Communication, Russia, 1897. Russian Government Engineer, 1897-99. Assistant to Professor of Hydraulics and Electrical Engineering, Ways of Communication Institute, 1897-99. Student in Electrotechnical Institute at Darmstadt and short apprenticeship courses in construction work with Lahmeyer Electric Co. and the Allgemeine Electricitäts-Gesellschaft, Germany, 1899-1900. Russian Government Engineer and Instructor of Electrical Engineering at the following institutions: (a) Ways of Communication, (b) Electro-technical, (c) Polytechnic Institute of St. Petersburg, 1900-02. Conducted evening classes in Experimental Physics and Mechanics in a Free School of St. Petersburg, 1898-99 and 1900-01 (Winters). Assistant Professorship, Institute Ways of Communication, 1902. Apprenticeship Course with Westinghouse Electric and Mfg. Co., 1903-04. With Joint Westinghouse Cos., St. Louis, Mo., Louisiana Purchase Exposition, 1904.

THOMAS MOONEY GARDNER, M.M.E., Assistant Professor of Mechanical Engineering.

B.M.E., Purdue University, 1892; M.M.E., Cornell University, 1896. With Bedford Electric Light and Power Co., Bedford, Ind., 1892. Assistant in Electrical Engineering, Purdue University, 1892-93. Engineering Construction Work, 1893-94. Professor of Physics and Electrical Engineering, Throop Polytechnic Institute, 1894-95. Engineering Construction, 1896-99. Instructor in Experimental Engineering, Sibley College, Cornell University, 1899-01. In charge of course in Applied Electricity, Pratt Institute, 1901-02.

JOHN S. REID, Instructor in Machine Design.

Special course, Irvine Academy, 1874-76. Apprentice in Riverside Engine Works, Kilmarnock, Scotland, 1876-80. Draughtsman, Patrick Engine Works, Glasgow, 1880-82. Hinckley Locomotive Works, Boston; Schenectady Locomotive Works, Schenectady, N. Y.; draughtsman in both places, 1882-83. Draughtsman for New York Locomotive Works, Rome, N. Y., 1883-87. Designer for New York Locomotive Works, Rome, N. Y., 1887-90. Instructor, Sibley College, Cornell University, Department Machine Design, 1891. Completed Summer course in Experimental Engineering at Sibley College, Cornell University, 1897.

EDGAR HARPER WOOD, M.M.E., Instructor in Machine Design.

M.E., Cornell University, 1892; M.M.E., Cornell University, 1893. Principal of the Dayton Manual Training School, 1895-99.

ROBERT LEE SHIPMAN, M.M.E., Instructor in Experimental Engineering.

GEORGE STANLEY MACOMBER, M.E., Instructor in Electrical Engineering.

M.E., Cornell University, 1900. With Bell Telephone Co., Pittsburgh, Pa., and Instructor in Physics and Electrical Engineering, Washington University, St. Louis, Mo., 1900-01.

RALPH GOLDSMITH YOUNG, M.E., Instructor in Experimental Engineering.

M.E., Cornell University, 1901. Assistant, Mechanical Laboratory, Sibley College, Cornell University, 1901-02. Instructor in Mechanical Laboratory, Sibley College, Cornell University, 1902. Employed by Cook Locomotive Works, 1899. Employed by New York Telephone Co., 1900. Consulting Engineer to Beeville Light and Power Co., 1901. In charge of Hartford Electric Light Co.'s Plant Test, 1902. Consulting Engineer, San Antonio Improvement Committee, 1904.

IRVING AXWELL COLBY, B.S., Instructor in Machine Design.

Graduated New Hampshire College, 1899. Instructor in Wood Working and Mechanism, New Hampshire College, 1899-1902.

HENRY L. FREEMAN, B.S., Instructor in Machine Design.

B.S. in E.E., Georgia School of Technology, 1899. Practical work with Lombard Iron Works, Worton Electrical Mfg. Co. and the Armour Fertilizer Works, 1898-1900. Adjunct Professor of Drawing, Georgia School of Technology, 1900-03.

VIRGIL OLDBERG, M.E., Instructor in Experimental Engineering.

C. D. ALBERT, M.E., Instructor in Experimental Engineering.

M.E., Cornell, 1902. With Columbia Iron Works, Shipbuilders, St. Clair, Mich., June, 1902 to Sept., 1903. Great Lakes Engineering Works, Detroit, Mich., Sept., 1903 to May, 1904. Olds Mobile Works, May, 1904 to June, 1904. Instructor in Experimental Engineering, Sibley College, Cornell University, Sept., 1904.

JOHN A. WHEELER, M.E., Instructor in Experimental Engineering.

With Westinghouse Electric & Mfg. Co., June—Sept., 1903. Instructor in Experimental Engineering, Sibley College, Cornell University, from September, 1903 to date.

W. M. SAWDON, B.S. in M.E., Instructor in Experimental Engineering.

B.S. in M.E., Purdue University, 1898. Detroit School for Boys, Sept., 1898 to June, 1899. Cincinnati Shaper Co., June, 1899 to Sept., 1899. Assistant in Mechanical Engineering, Kansas State Agricultural College, Sept., 1899 to Oct., 1902; Assistant Professor of Mechanical Engineering, Armour Institute of Technology, Oct., 1902 to June, 1904; Instructor in Experimental Engineering, Sibley College, Cornell University, Sept., 1904.

CLARENCE FLOYD HIRSHFIELD, M.E., Instructor in Experimental Engineering.

B.S., University of California, 1902. Instructor Experimental Engineering, Sibley College, Cornell University, 1903. Risdon Iron Works, San Francisco, 1899 (Summer). Risdon Iron Works Drafting Room, San Francisco, 1901-02 (Summers). Engineering Salesman, Chas. C. Moore & Co., San Francisco, 1904.

CURTIS CLARK MYERS, M.E., Instructor in Machine Design.

M.E., Cornell University, 1903, and two years in construction work with the Lackwanna Steel Co., Buffalo, N. Y.

GEORGE WHITMORE RICE, M.E., Instructor in Machine Design.

M.E., Cornell University, 1903, and four summers of practical work.

ROBERT RANKIN, M.E., Instructor in Electrical Engineering.

CHARLES BURTON HOWE, Instructor in Machine Design.

M.E., Cornell University, 1903. Taught Mathematics and Manual Training, Dolgeville Academy, 1902-03. Special Student in Pedagogy and Industrial Education, Teachers' College, Columbia, and also Instructor in Wood-working at St. George's School, 1893-94. Supervisor of Manual Training and Teacher of Mathematics, Jacob Tome Institute, 1894-96. Principal Bralow School of Industrial Arts, Binghamton, N. Y., having equipped and organized the school, 1896-97. Superintendent of Manual Training School, Hartford, Conn., having built and organized the school; also Assistant in Department of Machine Design, Sibley College, Cornell University, 1897-1902. Draughting, Designing and Engineering work, 1903. Instructor in Machine Drawing and Design, Mechanic Arts High School, Boston, 1904.

ROLAND BORMAN RENNER, M.E., Instructor in Machine Design.

B.S. in E.E., Purdue University, 1902; M.E., Cornell University, 1904. Inspector of Installation Miller Signal Co., Chicago, 1902. Installed Steam Plants, Valentino Mfg. Co., Nashville, Tenn., 1903. Special Apprentice, Niles, Bement, Pond Co., 1904.

JAMES EUGENE VANDERHOEF, Foreman in Foundry.

Apprentice with Ithaca Mfg. Works, Ithaca, N. Y., 1871-1875. Foreman with Ithaca Mfg. Co., 1875-1877. Worked in Reynold & Lang's, Treman & King's and other foundries, 1877-1886. Foreman of Foundry, Cornell University, since 1886.

WILLIAM FREDERICK HEAD, Foreman in Forge Shop.

Apprentice with David McGibbons, Westport, Pa., 1873-74; with J. B. Haggard, Union, N. Y., 1874-75; proprietor of smithshop, Cooper, N. Y., 1875-81; with Union Hardware Co., Union, N. Y., 1881-83; with Cortland Top and Rail Co., Cortland, N. Y., Foreman, 1883-85; Foreman Cortland Forging Co.,

1889-1891; Foreman R. D. Clapp Mfg. Co., Auburn, N. Y., 1891-92; with Ithaca Forging Co., Ithaca, N. Y., 1892-93; Assistant in Forge Shop, Cornell University, 1893-1901; Foreman of Forge Shop, Cornell University since 1901.

ALBERT EDWARD WELLS, Foreman of Machine Shop, and Instructor in Machine Construction.

Served apprenticeship with Whitney Electric Instrument Co., Sherbrooke, Quebec, 1892-95. Shop Foreman and also in charge of outside erection, Stanley Electric Mfg. Co., Pittsfield, Mass., 1895-98. Superintendent Cunningham Engine Co., Boston, 1898-1901. Superintendent Detail Department Stanley Electric Mfg. Co., Pittsfield, Mass., 1901-04.

CLINTON BYRON BURKE, Foreman of Woodshop.

Assistant Foreman in charge of repairs, with J. Barker Mfg. Co., Pittsfield, Mass., 1886-89. General Woodwork, with H. B. Hume, Pittsfield, Mass., 1889-1894. Student, 1894-96. Pattern maker, Stanley Electrical Mfg. Co., Pittsfield, Mass., 1896-1904.

ROBERT VANDERHOEF, Assistant in Foundry.

Apprentice with Ithaca Agricultural Works, Ithaca, N. Y., 1872-76. Assistant to foreman by John O. Spencer Mfg. Co., Union Springs, N. Y., 1876-77. Foreman, Ithaca Mfg. Works, Ithaca, N. Y., 1877-83. With various manufacturing companies in Ithaca as foreman and in other capacities, 1883-87. In charge of Sibley College buildings and boiler plant, 1887-91. Assistant in Foundry, Cornell University, since 1891.

WALTER LISTON HEAD, Assistant in Forge Shop.

Apprentice with Cortland Forge Co., 1890-93; with Ithaca Forging Co., 1893-95; with J. B. Williams Drop Forge Co., Brooklyn, 1895-98; with McKay Dornig Co., Buffalo, 1898-1900; Foreman Canadian Motor Cycle Co., 1900-01; with Ithaca Guo Co., 1901-02; Assistant in Forge Shop, Cornell University, since 1902.

RAYNOR EGBERT SEAMAN, Assistant in Woodshop.

In Cornell University Repair and Construction Shop, 1894-1901. Assistant in Sibley College Pattern Shop, 1901-04.

JOSEPH BENEDICT HANRAHAN, Assistant in Woodshop.

Served apprenticeship and had experience in cabinet-making with Patrick Hanrahan, Pittsfield, Mass., 1876-87. Contracting and House Building, 1887-88. Carpenter and Cabinet-maker with Theodore Glentz, Pittsfield, Mass., 1888-94. Carpenter with Dodge & Devanny, Pittsfield, Mass., 1894-99. In Carpenter Shop of the Stanley Electric Mfg. Co., Pittsfield, Mass., 1899-1904.

FRANK A. LYNHAM, Assistant in Machine Shop.

Served apprenticeship with Montpelier & Wells River R.R., Montpelier, Vt., 1888-92. Stationary Engineer in various places, 1892-97. Chief Engineer, Consolidated Lighting Co., Montpelier, Vt., 1897-1900. Mechanician in Experimental Laboratory, Stanley Electric Mfg. Co., Pittsfield, Mass., 1900-04.

WILLIAM ARTHUR PRIRCE, Assistant in Machine Shop.

Served apprenticeship with Diamond Machine Co., Providence, 1885-90. Machinist American Screw Co., 1890-95. Tool Maker, Brown & Sharpe, Providence, R. I., 1895-1900. Tool Maker, Sandy Hill Iron and Brass Works, 1900-01. Tool Maker, Stanley Electric Mfg. Co., Pittsfield, Mass., 1901-04.

GEORGE WASHINGTON RACE, Mechanician in Sibley College.

EDGAR WARREN GREGORY, Assistant Mechanician in Sibley College.

NON-RESIDENT LECTURERS, 1903-1904.

WILLIAM KENT, Syracuse, Education of the Engineer.

R. W. HUNT, Chicago, Biography of Sir Henry Bessemer.

E. D. MEIER, New York, Ethics of Engineering.

A. C. HUMPHERYES, Hoboken, Business Training and Engineering Education.

B. A. LENFEST, State College, Pa., Distribution Frames in Modern Telephone Installations.

C. P. BENNS, New York, Modern Systems of Profit Sharing.

The Sibley College of Mechanical Engineering and Mechanic Arts receives its name from the late Hiram Sibley of Rochester, who between the years of 1870 and 1887 gave \$180,000 toward its endowment and equipment. Mr. Hiram W. Sibley has added more than \$130,000 for later constructions.

The College is organized to train men in the fundamental principles that underlie all mechanical engineering and to give such actual engineering work as may be possible in a technical school. A man must supplement a technical course by experience in practice and contact with life before he can attain his greatest power as an engineer, but an effort is being made in Sibley College to bring the student in contact with teachers fresh from practical experience so that he may become familiar with some of the methods used in modern practice for the solving of engineering problems. It is hoped thus to shorten somewhat the period of adjustment for the graduate when he begins practical engineering work.

The success of an engineer has come more and more to depend upon his ability to meet men of education and culture on equal terms, and since the work of the College is almost purely technical the student before entering upon it should have a thorough general education, and if possible, the training of a liberal college course.

The work of the first two years is common to all students in the College and includes work in Modern Language, pure Mathematics, Physics, Chemistry and Mechanics of Engineering, which are given in other departments of the University, together with the more technical work of the College itself. During the third year, and to a greater extent during the fourth year, there is opportunity offered for specialization in different lines of Mechanical Engineering as indicated below.

Sibley College includes the following departments : 1. Mechanic Arts ; 2. Machine Design ; 3. Experimental Engineering ; 4. Steam

Engineering; 5. Electrical Engineering; 6. Naval architecture and Marine Engineering; 7. Railway Mechanical Engineering. The work of these departments in outline is as follows:

1. Department of Mechanic Arts. The object of the instruction in the department is to familiarize the student with shop methods and processes and the workability of the materials used in engineering construction. The principles of manufacturing and duplication of parts are illustrated by carefully selected exercises while the administration of the shops is expected to give the student a general idea of modern methods of shop operation including time-keeping and pay systems.

In connection with the several courses listed below, suitable talks are given bearing on the extension of the above shop methods and processes to work of larger dimensions than can be illustrated with the college equipment.

Pattern Making. The course begins with a series of graded exercises in wood working designed to give the student familiarity with the tools of the trade and also to teach him to work from dimensioned drawings. These exercises are expected to give him manual skill sufficient to take up the elementary details of pattern making which follow and lead up to the making of complete patterns and core-boxes. Instruction is also given in large pattern work, sweep work, etc., the aim of the whole course being to not only develop manual skill but to also give the student a good working knowledge of the art of pattern making.

Foundry Work. In the foundry, instruction is given in molding, core-making, mixing of metals, operation of cupola, etc. Such operations as sweep work, etc., are illustrated by suitable working apparatus and the methods and appliances used in the art in large work are fully explained by the instructors in charge.

Forge Work. In the forge shop the student receives manual instruction in forging, tempering, welding, etc., both in iron and steel. The methods used in manufacturing, such as drop hammer work, are illustrated and the application of the principles taught, to large work is fully discussed.

Machine Work. In the machine shop an effort is made not only to train the student manually and teach him correct shop practice, but also to instruct him in the principles of economical manufacturing. Carefully graded exercises are arranged to teach him the use of measuring instruments, hand tools and then machine tools. Manufacturing methods are fully explained and illustrated by modern tools and appliances. The administration of this shop in partic-

ular is intended to illustrate as far as possible approved methods of shop operation and give the student a general idea of time keeping, piece work and premium plan, wage systems, etc.

The above instruction is given to a great extent in connection with the construction of commercial machines or parts of same.

2. **Department of Machine Design.**—The work begins with the elements of mechanical drawing. The use of drawing instruments is first taught, and after the student has acquired some knowledge of descriptive geometry and the allied branches, the methods of work in the drawing rooms of workshops and manufacturing establishments are learned. Line drawing, tracing and "blue printing," the conventional section-lining and colors, geometrical construction, projections and other important details of the draughtsman's work are practiced until the student has acquired proficiency. The advanced instruction is developed directly out of the preceding courses and includes the tracing of curves and cams, the study of kinematics on the drawing board, tracing the motion of detail mechanism, and the kinematic relations of connected parts. This part of the work is accompanied by lecture room instruction and the study of the text book, the instructors in the drawing-rooms being assisted by the lecture room instructor, who is a specialist in his branch. The concluding part of the course embraces a similar method of teaching machine design, the lecture room and drawing-room work being correlated in the same manner as in kinematics or mechanics. The course is concluded, when time allows, by the designing of such complete machines as the steam engine, gas engine or other motor; or a punching and shearing machine, or traveling crane; and also by the selection of machinery for a manufactory or machine-shop and the arrangement for a specified output.

3. **Department of Experimental Engineering.**—The work in this department comprises a systematic course of instruction intended not only to give the student skill in the use of apparatus of exact measurement, but to teach him also the best methods of research. Its courses of instruction include the theory and use of machines for testing the strength and determining other valuable properties, of the materials of construction, of lubricants, and of fuels, etc., the processes of belt testing, and of power measurement, the standard system of gas and steam-engine and of steam-boiler trials and methods of testing electrical generators, motors, and of standardizing all electrical apparatus.

Commercial testing of prime movers or materials is at times done at the University or elsewhere and affords to such students as

are prepared an opportunity for practical experience and investigation.

4. **Department of Steam Engineering.**—The object of the work at this department is to give students a working knowledge of the problems involved in Heat Engines and auxiliary apparatus.

A preliminary course in steam machinery is given which includes the study of elementary thermodynamics and of simple and multi-cylinder engines, steam turbines and the typical forms of steam generators, with accessories. This is followed by a course which considers more fully the theory of heat engines and boilers, and makes application to the economic design of Pumping Plants and other Power Stations.

5. **Department of Electrical Engineering.** The student at the end of the third year of the course in Mechanical Engineering may, if he chooses, substitute the special work in electrical engineering for the prescribed work of the regular course. The special work of the fourth year comprises the study, under the direction of the Professor of Electrical Engineering, of station design and construction of the prime movers, the design and construction of electrical machinery, the study of the problems involved in the distribution of electric light and the electrical transmission of power, besides practice in every variety of measurement, computation and testing, as applied to the construction and maintenance of electric lighting, power plants, telephone and telegraph lines and cables, and to the general purposes of investigation. A large amount of work in the laboratories of the Department of Physics is also given with special reference to the needs of the electrical engineer.

6. **The Department of Naval Architecture and Marine Engineering** has for its object, to provide courses of instruction and opportunities for research in such special branches of engineering as relate to the design, building, powering, and propulsion of vessels of any and all types. Such courses naturally fall into two divisions.

(a) Naval Architecture. (b) Marine Engineering.

These two divisions are closely inter-related, and of the courses of study offered, many are common to both. Outside of these, each branch is specialized in its own direction, the naval architect being more especially interested with the design and construction of the ship, and the marine engineer with the design, construction, and maintenance of the motive power.

As a foundation for the above courses the student follows for the first two years, with no change, the regular Sibley College course in Mechanical Engineering. During the Junior year special work,

which has to be taken by students in divisions (a) and (b), in Naval Architecture and Marine Engineering is introduced to the extent of about one-third the time for the year. This is followed in the Senior year with further work in the same lines to the extent of about one-half the time of the year; the student selecting the course in which he desires to specialize. The remainder of the time in each year is occupied with studies in the regular course in Mechanical Engineering.

The undergraduate course, as above outlined, is intended to acquaint the student, in as thorough a manner as time will permit, with the general principles involved in the science of Marine Construction, and with the development and actual condition of the art as it is represented by the widest range of present day practice. The student is thus fitted to take up intelligently the practical study of his profession as found in the routine office work connected with marine design. With the start thus obtained, and the broad training in fundamental principles which the undergraduate course seeks to give, the attainments of the student in this field will be limited only by his industry, continuity of purpose, and the special direction in which his efforts are expended.

The purpose of the work offered in the graduate courses is to give opportunity for advanced study and research along special lines of work, at the same time broadening, rounding out and strengthening the work of the undergraduate course.

The methods of work in the graduate year are to a large extent individual and vary with the subject involved. They include directed courses of reading and study, special conferences with the professor, or courses of lectures dealing with the topics under examination, together with special research and investigation in such manner as may be most suitable to the subject in hand.

7. The Department of Railway Mechanical Engineering.--The courses of this department have special relation to the designing, manufacture, service in operation, repairing, and the trials of locomotives and other rolling stock and their equipment; and with the problems connected with the other kinds of machinery employed in railway operation. They are particularly adapted to the needs of the young engineer seeking to find his way into the mechanical departments of railways and into the positions, ultimately, of superintendents of shops and of motive power. These courses are also suitable for those who desire to become locomotive or car builders, as managers eventually of so-called "contract shops"; and for those whose interests lean towards the railway supply business, as the me-

chanical engineer, superintendent of works, or traveling representatives of firms furnishing equipment, supplies and tools for locomotives, cars and shops.

In addition to the courses offered in Sibley College, as purely professional, there will be found in the scheme of the special courses leading to advanced degrees, opportunities for pursuing work in economics, in law, and in allied professional and scientific departments, in all that great variety characteristic of the University.

The Department so arranges its work, also, as to connect closely with the regular work of Sibley College. Students may begin to specialize in their sophomore year by electing problems relating to locomotive details in course M.D. 5, Mechanical Drawing. In the Junior year the Railway Club becomes available. Juniors who are ahead of their course and have the proper preparation and time, may still further specialize by elections from the senior courses in the Railway Department. In the senior railway year, about half the student's time is devoted to railway subjects. The graduate year carries the specialized instruction to far greater thoroughness, handling the various problems with the strictly engineering completeness of the actual railway motive power department. Railway seniors, who have the available time, may elect some of this advanced graduate work. In general, with the above additions, the railway course is identical with the regular course in mechanical engineering for the first three years.

Graduates of engineering schools who have had the equivalent of the senior year in the regular course, can take a special graduate year, made up of the senior railway subjects and such electives from the graduate subjects as may be desired.

Particular attention is called to the opportunity offered for practical experience in railway and locomotive shops during the summer vacation. From 1899 there have been about thirty shops open each summer to the students for this three months of work, at wages more than covering expenses, of which from sixty to eighty students of all classes have annually availed themselves, some for three successive seasons. The importance of this work, as preparatory to the courses of the Railway Department, for developing character and self reliance, and for a better standing at the later entrance into permanent positions after graduation, cannot be overestimated.

Inspection trips, accompanied by the head of the Department as field lecturer, are made to important railway and manufacturing centers during the year, with a long tour covering the spring recess, at reduced rates.

Graduate Work.—In all departments advanced work is arranged to meet the special needs of graduate students.

Opportunities for Chemical Engineering. Excellent opportunities are opening in increasing numbers for men trained as mechanical engineers and familiar with the processes and methods of industrial chemistry. Students interested in this specialty may profitably supplement the work in mechanical engineering by the various courses in analytical and industrial chemistry, as specified under Chemistry in the Academic Department. The elective time of the regular course in mechanical engineering may be given to these subjects, and, in special cases, permission may be obtained to substitute work in applied chemistry for a certain part of the work of the regular course. See Chemistry, pp. 164 to 180.

Degrees.—Graduates of all departments of Sibley College are given the degree of Mechanical Engineer. If they have specialized in any department a certificate to that effect is also given signed by the Head of the department and the Director of the College.

Special Students.—Men at least twenty-one years of age who have had a considerable experience in some line of engineering work may be admitted as special students. They will need to have completed the mathematical preparation required of regular students, and may be held for examination in these subjects. No degrees are given to special students; but on fulfillment of all entrance requirements special students may become regular students and candidates for degrees.

Non-Resident Lecturers.—Supplementing the regular course of instruction, lectures are delivered from time to time by specialists of the profession.

Persons desiring more information in regard to any subject connected with Sibley College should address the Director of Sibley College.

BUILDINGS AND EQUIPMENTS OF SIBLEY COLLEGE.

The buildings of Sibley College occupy a ground enclosed between East and Central Avenues, at the north end of the Campus, leased from the University for the purposes of the College, under an agreement with the late Hiram Sibley.

The main building of Sibley College is three hundred and seventy feet long, fifty feet in width, and three stories in height. It contains museums, the reading room, drawing-rooms, lecture-rooms, large and well-lighted auditorium, and the class-rooms and offices of the

different professors. The workshops are placed in separate buildings and consist of a machine shop, a foundry, a blacksmith shop, and a wood-working shop, and include rooms devoted to the storage of tools. Besides these there is an additional building, one hundred and fifty feet by forty in dimensions, and two stories in height, occupied by the laboratories of the department of experimental engineering. At the bottom of Fall Creek Gorge is the house protecting the turbines which supply the power ordinarily required for driving the machinery of the College, and the electric apparatus for lighting the campus and the buildings, and, near it, a steam pumping station used as a reserve when the power of the hydraulic station is unequal to the demand for water supply. The large engine and dynamo room, containing all the engines and dynamos employed in lighting the University, is adjacent to the shops, and beside the boiler-room in which are placed the 200 H.-P. boilers furnishing steam to these and the experimental engines.

The Collections of Sibley College are of exceptional extent, value, and interest. A principal room on the first floor of the main building is devoted to the purposes of a museum of illustrative apparatus, machinery, products of manufacturing, and collections exhibiting processes and methods, new inventions, forms of motors and other collections of value in the courses of technical instruction. In this museum is placed a large Reuleaux collection of models of kinematic movements. Beside these are the Schroeder and other models exhibiting parts of machinery, the construction of steam engines and other machines, and a large number of samples of machines constructed to illustrate special forms and methods of manufacture. Many of these machines and tools have been made in the University shops.

A special museum building, 35 by 75 feet, has been erected for the Department of Railway Mechanical Engineering, in which is an important and growing collection of railway appliances, either new, or showing failures in service, or tested in Sibley laboratories. Here is located the Air Brake Instruction Rack and laboratory, consisting of the full air brake equipment of locomotive, tender, passenger car (ordinary and "high speed") and 25 freight cars, all operated by compressed air from various types of air pumps and compressors.

The Workshops are fully equipped throughout with standard hand and machine tools from reputable makers, the machine tools having been selected with a view of not only giving manual instruction, but also to illustrate modern manufacturing methods. Many of the hand and machine tools are the product of the College shops.

The Sibley College Mechanical Laboratories in charge of the

department of experimental engineering contain the apparatus for demonstration and experimental research of Sibley College, in which instruction is given and investigation is conducted. They are supplied with the apparatus for testing materials and for experimental work in the determination of the power and efficiency of heat and hydraulic motors, and have facilities for operating and testing the steam and hydraulic power plant employed in driving the machinery of the establishment. They contain over twenty machines of the various standard types for testing the strength of metals, including machines of 50, 100, and 150 tons capacity ; and one 60,000 and one 200,000 pound Emery machine, of extraordinary accuracy and delicacy, and about thirty steam engines, air, oil, and gas engines, fourteen dynamometers, ten lubricant-testing machines, about eighty standard pressure guages and an equally numerous collection of steam engine indicators, together with other apparatus and instruments of precision employed by the engineer in such researches as he is, in practice, called upon to make. All the motors of the University, and its boilers, amounting to 1000 horse-power, are available for test trials. The steam engines, with the heavy lighting dynamos, are adjacent to the boilers ; among them a 200 H.-P. "experimental engine," and several of smaller power, including a steam-turbine of 200 H.-P., with dynamo attached, and a 20 H.-P. quadruple expansion experimental engine and steam boiler, designed and built by students, and arranged to use steam at 500 pounds pressure.

The laboratories have a total floor space exceeding 25,000 square feet and are divided into several departments for instruction and investigation. The department of steam engineering possesses one triple expansion Corliss engine, one triple expansion slide valve engine of 60 horse-power, one quadruple expansion engine and numerous examples of simple and compound engines and pumps ; one Parsons steam turbine of 200 horse-power and one De Laval turbine of 25 horse-power capacity, it also contains two Babcock and Wilcox water tube boilers fitted with superheating apparatus, one Heine water tube boiler, one Roberts water tube boiler, one special water tube boiler for 1000 pounds steam pressure and several examples of shell boilers ; it has also one Foster superheater ; it also contains several surface condensers, heaters, traps and other accessories of a steam power plant ; it also contains all apparatus necessary for the complete tests of steam engines and other motors, including about eighty indicators, and a large collection of gauges, thermometers, reducing motions, etc. The department of internal combustion motors includes a very complete collection of hot air engines, gas

and oil engines of various types, which are sufficient to illustrate all the principal improvements in this art which have been made since the earliest use of a successful gas engine; altogether, the department has fourteen working motors of this type, with all the facilities required for testing. The department of refrigeration and air compression includes one complete refrigerating plant of small size with all apparatus for testing, several air compressors of both the single and two-stage type; several fans and blowers with apparatus for testing; one complete set of air brake apparatus, a rock drill, and a number of compressed air tools, also a meter for the measurement of compressed air. The department of lubrication and friction contains a complete assortment of apparatus for the measurement of the friction, and the testing of lubricants, including eight oil testing machines; and apparatus for the measurement of viscosity, and other physical properties of oil. It also contains a large collection of transmission and absorption dynamometers for the measurement of power. The department of hydraulic machinery possesses a number of hydraulic motors, pumps, hydraulic rams, and apparatus for testing the same; it also contains a number of small weirs, nozzles, and other apparatus for measuring the flow of water. The department for testing strength of materials, is well equipped for this purpose, containing one Emery testing machine of 200,000 pounds capacity, and some twenty other machines ranging in capacity from 300,000 pounds to 50,000 pounds and adapted for testing by transverse, tension, compression and torsion. The department of engineering chemistry possesses apparatus for making the approximate analysis and determining the heating value of coals; for analyzing flue gases and products of combustion; for the manufacture of small samples of Portland cement, and for testing the strength and other properties of cement. The department of electrical apparatus includes a large collection of generators and motors presented to Sibley College from time to time but which have been utilized for lighting and power purposes by the University, pending the construction of a new hydraulic power plant now nearing completion. This apparatus will be employed for the purposes of giving practical instruction in efficiency tests, operation and adjustment of electrical apparatus as used in the modern power house at the present time.

The Laboratories of Electrical Engineering, including the electrical apparatus of the Departments of Electrical Engineering and Experimental Engineering of Sibley College, and also that available in the Departments of Physics and Chemistry, comprehend many special collections of apparatus and equipment. This equipment is

adapted to the giving of experimental lectures, to laboratory practice, to complete plant testing, to standardization and to original investigation. In addition to the usual complement of apparatus for demonstration, the lecture equipment includes an air-insulated, high-pressure transformer with necessary regulators for subjecting insulators and insulating material to alternating pressures up to 80,000 volts. This may be supplemented by additional transformers for raising the pressure still higher. A 30,000 volt inductorium provides current for wireless telegraphy. Large cathode ray tubes, supplied from a special multiple plate, power driven static machine, are used for the demonstration of alternating current phenomena. All the standard equipment, as well as many pieces of specially designed apparatus are employed to show to the classes the operation of the principle laws applied in electrical engineering. Exhibits of apparatus, such as street railway car controllers, rail sections, insulating and line material, etc., are provided in profusion. This list includes a complete outfit for exhibiting in actual operation the multiple unit system of electric car control. The laboratory apparatus comprises a full complement of alternating and direct current machinery of all kinds. Recent additions include a two-phase generator of excellent design, single and polyphase induction motors, a rotary convertor and transformers, switchboards and auxiliaries necessary for exercises in polyphase practice. There are, in addition, many single phase machines suitable for operation as generators or as synchronous motors. A large variety of direct current dynamos and motors suitably mounted for testing, cover the field of direct current machinery. Arc lamps, a welding machine, photometers and many other special devices are included in the equipment. A De Laval steam turbine, geared to a double current generator, a direct-connected marine set and circuit-breakers, switches, water rheostats, and other auxiliaries are in use for plant test experiments. The plant testing is done largely outside of the College buildings, and for this purpose a large variety of ammeters, voltmeters, wattmeters, and other instruments are maintained in adjustment at a high standard of accuracy. These instruments have capacity great enough for testing the largest power plants. Special facilities are provided for the standardization of all electrical apparatus. Board of Trade and Reichanstalt standards of resistance with large current carrying capacity, potentiometers and galvanometers, and reference standards of electro-motive force are among the facilities provided for this purpose. The College possesses a Parsons steam turbo-alternator of 150 kilowatt capacity, provided with all the apparatus necessary for complete study and investigation of this class of machinery. A number of

lighting alternators, and direct current power and lighting generators are available for the same purpose. A remarkable set of generators recently installed produces a pressure of 14,000 volts, direct current by connecting in series, and most carefully insulating twenty-four 550 volt dynamos. The pressure thus available opens up a wide field of investigation. In addition to the apparatus at the University, the students may observe in operation a modern three-phase power transmission in the local power and lighting service. Large direct connected generators, rotaries, constant current regulators and induction motors, as well as the lighting and railway system are convenient for inspection.

Scholarship and Prizes.

Sibley Prizes in Mechanic Arts.—Under the gift of the late Hon. Hiram Sibley, made in 1884, the sum of one hundred dollars will be annually awarded to those students in the Sibley College who shall, in the opinion of the Faculty of that institution, show the greatest merit in Sibley College work.

The Frank William Padgham Scholarship will be assigned to the best competing candidate in the scholarship examinations in the studies required for entrance to the regular course in Mechanical Engineering, who shall have had his preparatory education in the public schools of Syracuse, New York. For particulars see p. 60.

REQUIREMENTS FOR ADMISSION.

The following subjects are required for admission : English, History [the student must offer one of the four following divisions in History : (a) American, including Civil Government ; (b) Mediæval and Modern European ; (c) English ; (d) Ancient] ; Plane Geometry, Elementary Algebra. See pages 33 to 35.

In addition to the above primary entrance subjects, the applicant must offer as below.

1. In Solid Geometry, Advanced Algebra, and in Plane and Spherical Trigonometry, as much as is contained in the standard American and English text-books. See pp. 37-38.

2. In Advanced French and Advanced German, see pages 40-41.

Any two of the following entrance subjects or groups of subjects (a-k), may be offered in place of either Advanced French or Advanced German. Advanced Spanish counts as two of the equivalent subjects below : (a) Elementary Spanish, (b) Latin Grammar and Caesar, (c) Latin Composition and Cicero, (d) Virgil, (e) Greek Grammar and Xenophon, (f) Greek Composition and Homer, (g) Physics, (h)

Chemistry, (i) Geology, (j) Botany, (k) Drawing. If Advanced German and Elementary French or Advanced French and Elementary German be offered only one of the groups a-k need be submitted as a substitute.

[For details as to subjects and methods of admission see pages 33-54.]

For admission to the freshman class and to advanced standing from other colleges and Universities, communications should be addressed to the Registrar. See pages 33-54.

For admission as specials, communications should be addressed to the Director of Sibley College. See pages 53 and 54.

For admission to graduate work and candidacy for advanced degrees, communications should be addressed to the Dean of the University Faculty. See pages 66 and 70.]

COURSES IN MECHANICAL ENGINEERING LEADING TO THE DEGREE OF MECHANICAL ENGINEER.

Regular Course.

The letters and figures relate to the departments and courses in Sibley College as described on pp. 410 to 416.

Freshman Year.

	No. Course.	1st Term.	2d Term.
German* or French*	1 or 2	3	3
Analytic Geometry	2	4	-
Differential Calculus	2	1	2
Integral Calculus	2	-	3
Chemistry and Drawing, M.D. I } or	1 and 1	6	4
Drawing M.D. I, and Chemistry } or	2 and 1	4	6
Shopwork	I	2	2

In addition to the above the required Drill must be taken.

Sophomore Year.

	No. Course.	1st Term.	2d Term.
Mechanics of Engineering	C.E. 20	5	5
Descriptive Geometry	C.E. 9	2	2
Physics	I	4	4
Chemistry and Drawing } or	6 and 5	5	4
Drawing and Chemistry } or	5 and 6a	4	5
Shopwork	{ 5	2	-
	6	-	2

*If a student at entrance has satisfied Advanced German and Elementary French or Advanced French and Elementary German, no more language will be required.

<i>Junior Year.</i>	No. Course.	1st Term.	2d Term.	
Steam Machinery.....	S.E. 10	-	4	
Electrical Engineering.....	E.E. II	4	-	
Drawing and Design.....	M.D. 10	2	2	
Kinematics.....	M.D. II	2	-	
Machine Elements.....	M.D. 12	-	3	
Stresses in Machines.....	M.D. 14	1	-	
Materials of Engineering.....	X.E. 10	2	-	
Physical Laboratory.....	Physics 3	2	2	6
Mechanical Laboratory.....	X.E. II	2	2	
Mechanical Laboratory.....	X.E. IIIa.....	1	1	
Shopwork	M.A. 10	2	2	4
<i>Senior Year.</i>	No. Course.	1st Term.	2d Term.	
Steam Engines and other Motors.....	S.E. 20	5	2	
Physical Laboratory.....	Physics 4	3	-	
Mechanical Laboratory.....	X.E. 20	2	1	
Mechanical Laboratory.....	X.E. 20a.....	1	-	
Engine Design (or M.D. 22).....	M.D. 20	4	-	
Designing (or M.D. 23).....	M.D. 21	2	3	
Thesis: Designing and Drawing, Mechanical Laboratory Investigations, Shopwork, time divided optionally, but subject to approval of the Director		-	8	
Elective		2	3-5	

Course in Electrical Engineering.

The freshman, sophomore, and junior years are identical with the course in Mechanical Engineering; in the senior year, laboratory work is increased, and advanced electrical engineering work introduced.

<i>Junior Year.</i>	No. Course.	1st Term.	2d Term.	
Steam Machinery.....	S.E. 10	4	-	
Electrical Machinery.....	E.E. 10	-	4	
Drawing and Design.....	M.D. 10	2	2	
Kinematics.....	M.D. II	2	-	
Machine Elements.....	M.D. 12	-	3	
Stresses in Machines.....	M.D. 14	1	-	
Materials of Engineering.....	X.E. 10	2	-	
Physical Laboratory.....	Physics 3	2	2	
Mechanical Laboratory.....	X.E. II	2	2	
Mechanical Laboratory.....	X.E. IIIa.....	1	1	
Shopwork	M.A. 10	2	2	

<i>Senior Year.</i>	<i>No. Course, 1st Term.</i>	<i>2d Term.</i>
<i>Physics, Laboratory work and Lectures</i>	4	4
<i>Steam Engine and other Motors</i>	8	1
<i>Mechanical Laboratory</i>	S.E. 20	5
<i>Mechanical Laboratory</i>	X.E. 20	2
<i>Electrical Engineering</i>	X.E. 20A	1
<i>Electrical Engineering</i>	E.E. 20	4
<i>Thesis, including laboratory, drawing and shop</i>	E.E. 21	2
		8

Courses in Naval Architecture and Marine Engineering.

The freshman and sophomore years are identical with the course in Mechanical Engineering. In the junior year slight changes are made, in order to begin introductory courses in Naval Architecture and Shipbuilding. In the senior year a still larger proportion of marine work is introduced. Special circulars relating to this work will be sent on application to the Director of Sibley College.

Course for Naval Architects and Marine Engineers.

<i>Junior Year.</i>	<i>No. Course.</i>	<i>1st Term.</i>	<i>2d Term.</i>
<i>Steam Machinery</i>	C.E. 10	-	4
<i>Machine Elements</i>	M.D. 12	-	3
<i>Kinematics</i>	M.D. 11	2	-
<i>Stresses in Machines</i>	M.D. 14	1	-
<i>Materials of Engineering</i>	X.E. 10	2	-
<i>Physical Laboratory</i>	Physics 3	2	2
<i>Mechanical Laboratory</i>	X.E. 11	2	2
<i>Mechanical Laboratory</i>	X.E. 11A	1	1
<i>Shopwork</i>	M.A. 10	2	2
<i>Naval Architecture</i>	M.C. 10	-	2
<i>Ship Construction</i>	M.C. 11	4	2
<i>Marine Engineering</i>	M.C. 12	2	2

Course for Naval Architects.

<i>Senior Year.</i>	<i>No. Course.</i>	<i>1st Term.</i>	<i>2d Term.</i>
<i>Steam Engines and other Motors</i>	S.E. 20	5	2
<i>Physical Laboratory</i>	Physics 4	2	-
<i>Electrical Engineering</i>	E.E. 11	4	-
<i>Naval Architecture</i>	M.C. 20	3	5
<i>Ship Construction and Design</i>	M.C. 21	4	4
<i>Marine Engineering</i>	M.C. 22	2	2
<i>Marine Engineering (steam turbines)</i>	M.C. 23	-	1
<i>Thesis</i>		-	6

Course for Marine Engineers.

<i>Senior Year.</i>	No. Course.	1st Term.	2d Term.
Steam Engines and other Motors	S.E. 20	5	2
Physical Laboratory	Physics 4	2	-
Electrical Engineering	E.E. 11	4	-
Mechanical Laboratory	X.E. 20	2	1
Mechanical Laboratory	X.E. 20A	1	-
<i>Naval Architecture</i>	M.C. 20	-	3
<i>Shipbuilding</i>	M.C. 11	2	-
<i>Marine Engineering</i>	M.C. 22	4	4
<i>Marine Engineering (steam turbines)</i>	M.C. 23	-	2
<i>Thesis</i>		-	6

Course in Railway Mechanical Engineering.

The freshman, sophomore and junior years may be identical with the regular course in mechanical engineering; but, preferably, sophomores should make request for locomotive details in their Mechanical Drawing, M.D. 5; and juniors, in order to obtain time for more advanced work in their senior year, should add senior electives as below.

A graduate year may be arranged, requiring 15 hours of electives consisting of such senior railway courses as have not been taken and of advanced courses.

Railway courses may be elected separately by seniors in other departments or by juniors who may have the proper preparation and time.

<i>Summer Vacation.</i>	No. Course.	Time.
<i>Locomotive Shopwork (advised)</i>	R. 10	3 months

Junior Year.

Regular course in mechanical engineering, with advised addition of electives in Railway Club (both terms), Railway Designing and Electric Railways (2d term), Locomotive Testing.

<i>Senior Year.</i>	No. Course.	1st Term.	2d Term.
<i>Railway Machinery</i>	R. 20	4	4
<i>Designing</i>	R. 21	3	(1)
<i>Locomotive Testing (elective in place of R. 21, 2d term. 1 hour)</i>	R. 23	(1)	-
<i>Railway Club</i>	R. 22	1	1
<i>Electric Railways</i>	R.R. 25	1	1
Steam Engines and other Motors	S.E. 20	5	2
Physical Laboratory	Physics 4	1	2
Mechanical Laboratory	X.E. 20	2	1
Mechanical Laboratory	X.E. 20A	1	-
<i>Thesis</i>		-	8

A Six Year Course Leading to the Two Degrees A.B. and M.E.

Juniors and seniors in good standing in the Academic Department are allowed, with the permission of the Faculty of Arts and Sciences, and with the consent of the Faculty concerned in each case, to elect studies in other Colleges which shall count toward graduation in the Academic Department, but the sum total of hours elected cannot exceed the number required for one year's work in such Colleges, nor exceed nine hours per week in any term.

In accordance with this provision the following suggestion is given for a six year course leading to the degrees of A.B. and M.E. Subjects in italics are those common to the courses for both degrees. With this end in view Descriptive Geometry may be taken in the sophomore year of the course for A.B.

Freshman Year.

	No. Course.	1st Term.	2d Term.
<i>Analytic Geometry</i>	2	4	-
<i>Differential Calculus</i>	2	1	2
<i>Integral Calculus</i>	2	-	3
<i>French or German</i>	I or 2	3	3
<i>Chemistry and Drawing</i>	M.D. I	6	4
<i>Drawing (M.D. 1) and Chemistry</i>	I	4	6
<i>Elective in Arts and Sciences</i> (Maximum)	4	4	4
Drill		2	2
<i>Gymnasium</i>	6	1	1

Sophomore Year.

	No. Course.	1st Term.	2d Term.
<i>Physics</i>	I	4	4
<i>Chemistry</i>	6	6	-
<i>Descriptive Geometry</i>	C.E. 9	2	2
<i>Elective in Arts and Sciences</i> (Maximum)	6	12	12

Junior Year.

	No. Course.	1st Term.	2d Term.
<i>Mechanics</i>	C.E. 20	5	5
<i>Shopwork</i>		2	2
<i>Physics</i>	3 and 4	4	3
<i>Elective in Arts and Sciences</i> (Maximum)	7	7	

Senior Year.

	No. Course.	1st Term.	2d Term.
<i>Drawing</i>	M.D. 5	2	2
<i>Shopwork</i>		2	2
<i>Steam Machinery</i>	S.E. 10	-	4
<i>Electrical Engineering</i>	E.E. 11	4	-
<i>Elective in Arts and Sciences</i> (Maximum)	10	11	

The completion of the above courses will lead to the degree of A.B.

<i>5th Year.</i>	No. Course.	1st Term.	2d Term.
Kinematics -----	M.D. II	2	-
Machine Elements -----	M.D. I2	-	3
Stresses in Machines -----	M.D. I4	1	-
Drawing and Design -----	M.D. IO	2	2
Materials of Engineering -----	X.E. IO	2	-
Mechanical Laboratory -----	X.E. II	2	2
Mechanical Laboratory -----	X.E. IIS	1	1
Shopwork -----	-----	2	2
Elective -----	-----	5	4
<i>6th Year.</i>	No. Course.	1st Term.	2d Term.
Steam Engines and other Motors -----	S.E. 20	5	2
Mechanical Laboratory -----	X.E. 20	2	1
Mechanical Laboratory -----	X.E. 20a	1	-
Designing, M.D. 20, 21 or 22, 23 -----	-----	6	3
Thesis -----	-----	-	8
Elective -----	-----	5	5

The completion of the above additional courses will lead to the degree of M.E.

For those specializing in electrical engineering, marine construction or railway mechanical engineering, the arrangement of a six-year course for both degrees would be slightly different, as indicated by the details of these various courses of study.

Courses of Instructions.

The courses in each department are numbered in accordance with the following plan :

Numbers 1 to 4 inclusive denote Freshman subjects		
" 5 to 9 "	"	Sophomore "
" 10 to 19 "	"	Junior "
" 20 to 29 "	"	Senior "
" 30 to 35 "	"	Graduate "

Three hours in the shops or drawing rooms count as one hour in the schedule.

Unless otherwise noted the courses run continuously throughout the year.

THESIS.

The thesis is intended to represent the results of some special study or investigation, either theoretical or experimental, or preferably both. It is furthermore intended to enable the student to show the results of his training as an engineer, and his capacity for the intelligent study of special or original problems.

The subject of the thesis must be submitted for the approval of the Director of the College not later than the Christmas recess, and the thesis in complete form must be handed in not later than the 15th of May following. In special cases, and upon the recommendation of the professor having immediate oversight of the work, the time limit for the submission of the completed thesis may be extended.

Department of Mechanic Arts (M.A.)

1. Pattern Making. Use of wood-working tools; elements of pattern making. Two hours. Daily, 8-11, 2-5, as assigned. Messrs. BURKE, SEAMAN, and HANRAHAN.

5. Foundry Work. Moulding, casting, mixing metals, operation of furnaces, etc. One term, daily as assigned, 8-11, 11-2, 2-5. Messrs. J. E. and R. VANDERHOFF.

6. Forge Work. Forging, welding, tool-dressing, tempering, etc. One term, daily as assigned, 8-11, 11-2, 2-5. Messrs. W. H. and W. L. HEAD.

10. Machine Work. Use of measuring tools, hand and machine tools, fitting and assembling. Daily as assigned, 8-11, 11-2, 2-5. Messrs. WELLS, LYNHAM, and PIERCE.

20. Works Administration. Elective for Seniors. Factory organization; theory and finance of manufacturing; cost and wage systems. Lectures, two hours second term. Professor KIMBALL.

Department of Machine Design. [M.D.]

I. Drawing. Freshman. Twelve hours per week for one term. Four hours' credit. Either first or second term, as assigned. Elements of projection drawing with use of instruments, machine sketching, lettering and dimensioning. Assistant Professor RAUTENSTRAUCH, Messrs. WOOD, HOWE, and RENNER.

5. Machine Drawing. Sophomores. Fifteen hours per week for one term. Recitations at intervals. Five hours credit. Daily except S., 8-11 or 2-5; either first or second term, as assigned. Assistant Professor COOLIDGE, Messrs. REID, FREEMAN, and MYERS.

10. Drawing and Designing. Requires course C.E., 9. Should be taken in connection with M.D. 14 in the first term, and M.D. 12 in the second term. Juniors. Six hours drawing per week. Two hours credit. First term: Laying out the motions of mechanisms, velocity and acceleration diagrams, etc. Second term: Design of a simple form of crane, including complete commercial drawings. Professor JONES, Messrs. COBLY, RICE, and MYERS.

II. Kinematics. Requires course C.E. 9. Juniors. One lecture and two recitations per week, first term for 10 weeks. Two hours'

credit. Graphical solution of motions of mechanisms. Recitations in twelve sections. Professor JONES, Assistant Professor RAUTENSTRAUCH, Messrs. COLBY, RICE, FREEMAN, and RENNER.

12. **Machine Elements.** Requires courses M.D. 11 and 14. Juniors. Three hours' credit. Second term. Two lectures and one recitation per week. Professor JONES and Instructors.

14. **Stresses in Machines.** Requires course C.E. 20 and should be preceded by M.D. 11. Juniors. One lecture and two recitations per week, first term from last five weeks of term. One hour credit. Form and strength of the more elementary machine parts. Twelve sections. Professor JONES, Assistant Professor RAUTENSTRAUCH, Messrs. COLBY, FREEMAN, RENNER, and RICE.

20. **Steam Engine Design.** Requires courses M.D. 11, 12, 14 and S.E. 10. Seniors. Four hours, first term. Lectures, T., W., Th., F., 10. Assistant Professor BARNARD.

NOTE.—Seniors in mechanical engineering have an option of courses M.D. 20 and 21, or 22 and 23.

21. **Designing and Drawing.** Requires courses M.D. 11, 12, 14, and S.E. 10. Seniors. Credit, two hours first term, three hours second term. Designing of engines, boilers, steam plants, etc., and intended to accompany course M.D. 20. Drawing, M., T., W., Th., 2-5. Professor JONES and Assistant Professor BARNARD.

22. **Machinery and Millwork.** Requires courses M.D. 10, 11, 12 and 14. Seniors. Three hours first term. Lectures, M., W., F., 12. Assistant Professor COOLIDGE.

See note under course M.D. 20.

23. **Designing and Drawing.** Requires courses M.D. 11, 12, 14 and M.E. 10. Seniors. Credit, three hours first term, three hours second term. Designing of machine tools, transmission and hoisting machinery, etc. Intended to accompany course M.D. 22. Drawing daily except S., 8-11. Professor JONES and Assistant Professor COOLIDGE.

24. **Gas Engine Design.** Requires courses M.D. 11, 12, 14 and S.E. 10. Elective for seniors. Two hours per week first term. Lectures T., Th., 8. Professor JONES.

26. **Machine Tools.** Seniors. Elective. Lectures. Machinery for the production of other machinery and structures. Two hours per week from beginning of second term to Easter recess. One hour credit. Assistant Professor COOLIDGE.

27. **Specifications and Contracts.** Elective. Lectures. Two hours per week from Easter recess to end of second term. One hour credit. Professor JONES.

28. Drafting Room Practice. Elective for all students. Drafting room systems and organization. Second term. One lecture per week. Assistant Professor COOLIDGE.

30. Advanced Designing. Requires either courses M.D. 20 and 21; 22 and 23; 24; or 25. Professor JONES, Assistant Professor COOLIDGE and BARNARD.

NOTE.—Students who have not taken courses M.D. 20 and 21 or 22 and 23 in the first term will not be registered for the continuation of these courses in the second term.

Department of Experimental Engineering. [X.E.]

10. Materials of Engineering. Juniors. Two hours. First term. Lectures. M., W., T., Th., 10. Professor CARPENTER, Assistant Professor DIEDERICHS, and Mr. R. G. YOUNG.

11. Mechanical Laboratory. Two hours. Credit made up as follows: one hour for three hour laboratory period, and one hour for written report. Juniors. Strength of materials, tension, transverse testing, compression, torsion, impact testing, strength of large specimens, and special research; calibrating dynamometers, steam guages, weirs, and meters; oil testing, flue gas analysis, calorimetry, thermometer calibration, valve setting and indicator practice; test of durability of lubricants, efficiency tests, water motors, centrifugal pumps, gas engines, injectors, steam-pumps, electrical apparatus, and indicator practice. One hour of class-room work. Daily except Sat., 2-5, and Sat., 8-11. Professor CARPENTER, Assistant Professor DIEDERICHS, and Messrs. OLDBERG, WHEELER, SAWDON and ALBERT.

11a. One Hour Recitations on Laboratory Practice. Juniors. One hour per week as assigned for same periods as course 11.

20. Mechanical Laboratory. Two hours. Credit made up as follows: One hour for three hour laboratory period and one hour for written report. Course runs from the beginning of the year to the Easter recess. Credit, 2 hours first term, one hour second term. Seniora. Lectures and recitations. Efficiency tests, steam boilers, steam engines, turbine water-wheels, air compressor, hot air engines, blowing fans, transmission of power by belting and gearing. Test of steam engine and application of Hirn's analysis, power required to drive machine tools, test of a steam-heating plant, test of power plants not at the University. Efficiency test of injectors, refrigerating, machinery, electric power stations, electrical apparatus. Daily except Sat., 2-5, and Sat., 8-11. Professor CARPENTER, Assistant Professor DIEDERICHS, Assistant Professor KARAPETOFF and Messrs. SHIPMAN, HIRSHFELD, and YOUNG.

20a. Recitations on Laboratory Practice and Problems. Seniors. One hour per week for the same period as course 20.

21. Elementary Problems in Consulting Practice. Power Plant Installation. Seniors and graduates. Lectures. W., Th., 5-6. Mechanical Laboratory practice and research. Daily 2-5. Professor CARPENTER, Assistant Professor DIEDERICHS and Mr. YOUNG, R. G.

(22.) **Operation of Engines.** One hour, second term after Easter vacation. Seniors. Starting, stopping, adjustment, lubrication, and all problems connected with the practical operation of steam, gas engines and air compressors. Professor CARPENTER, Mr. SHIPMAN, and —.

(22a.) **Lectures and recitations on construction, operation, adjustment and installation of gas and steam engines.** One hour. Professor CARPENTER, Assistant Professor DIEDERICHS and Mr. YOUNG.

(23.) **Operation of Electrical Machinery.** One hour. Practice in starting, stopping, adjusting and operating various forms of electrical machinery and switchboard apparatus. Professor CARPENTER and Assistant Professor KARAPETOFF.

30. Special Research; Commercial Tests. Graduates and advanced students. Professor CARPENTER.

Department of Steam Engineering. [S.E.]

10. Steam Machinery. First term for E.E. and C.E. Second term for all others. Requires course 1 Physics, and 20 C.E. Juniors. Recitations. Credit, 4 hours. Assistant Professor GARDNER.

20. Steam Engines and other Motors. Thermodynamics and the theory of steam and other heat engines. Lectures. Five hours. Daily except S., 11. Professor SMITH.

30. Advanced Work in Special Courses and Graduate Work in Steam Engineering. As may be assigned. Professor SMITH.

Department of Electrical Engineering. [E.E.]

10. Electrical Machinery. Juniors in electrical engineering. Four hours, second term. Recitations in four sections as follows: M., 8, T., 11, Th., 11, F., 9; M., 9, T., 9, Th., 9, F., 8; T., 8, W., 11, Th., 8, F., 11; T., 12, W., 12, Th., 12, F., 12. Mr. MACOMBER.

11. Electrical Engineering. Juniors in mechanical and marine engineering and seniors in civil engineering and naval architecture. Four hours first term. Lectures, M., W., F., 8; one recitation, eleven sections as follows: M., 10; T., 8, 9; W., 11; Th., 8, 9, 11, 12; F., 9, 10, 11. Professor RYAN and Mr. MACOMBER.

20. **Electrical Engineering.** Seniors in electrical engineering. Requires courses E. E. 10, C. E. 20, and Junior Physics. First term, four hours. Lectures, T. and Th., 9. One recitation in three sections, M., 12, T., 10, Th., 10. Seminary, Transactions. A. I. E. E., three sections, T., W., Th., 12. Second term, two hours, lectures T. and Th., 9. Professor RYAN.

21. **Designing and Drawing.** Seniors in electrical engineering. Two hours, first and second terms. Sections as arranged. M., W., F., 8-11; M., T., W., Th., F., 2-5. Acting Assistant Professor McALLISTER.

25. **Electric Railways.** Seniors in railway mechanical engineering. Lectures, recitations, seminary work. First and second terms. S., 9. Professor RYAN.

26. **Telephone Engineering.** Elective. Requires course E. E. 20 and 21. Second term. S., 8. Mr. MACOMBER.

31. **Electrical Engineering.** Graduates. Special work. Professor RYAN.

Department of Naval Architecture and Marine Engineering.
[M.C.]

10. **Naval Architecture.** Elementary theory of a floating body. Computation of various geometrical quantities. Lectures and exercises in computation. Two hours per week, second term. Assistant Professor McDERMOTT.

11. **Shipbuilding and Design.** Methods of ship construction. Laying down and fairing lines. Drawing general arrangement plans and various structural elements. Four hours first term, two hours second term, lectures and drawing. Assistant Professor McDERMOTT.

12. **Marine Machinery.** Study of marine boilers, mountings and piping, feed heaters, superheaters, filters and other boiler room auxiliaries. Two hours per week. Assistant Professor THOMAS.

20. **Naval Architecture.** More advanced theory of a floating-body with applications to special problems. Strength of ships. Resistance, propulsion, and powering. Lectures and exercises in computations. Credit, 3 hours first term. Lectures, T., Th., 9. Credit. 5 hours second term. Lectures, T., Th., 9. Assistant Professor McDERMOTT.

21. **Shipbuilding and Design.** Scantlings of vessel construction according to rules of Registration Bureaus, etc. Drawing of scantling sections. Discussion of the design of vessels of various services, including selection of suitable forms, speed and power, stability, trim, strength of completed structure, etc., embodying also the application

of the subjects considered in courses 10 and 20. Four hours. Lectures, M., W., F., 9. Assistant Professor McDermott.

22. **Marine Machinery.** Descriptive study of marine engines, and auxiliary machinery. Design of characteristics and of structural details. Operation and care when under way. Design and construction of paddle wheels and screw propellers. Lectures and drawing. Four hours. Lectures M., W., 10. Assistant Professor Thomas.

23. **Steam Turbines.** Study of the leading types of steam turbines as employed in marine practice, their design, construction and general characteristics. Two hours, second term. F., 10. Assistant Professor Thomas.

30. **Naval Architecture.** Advanced work. As assigned. Assistant Professor McDermott.

31. **Ship Design.** Advanced work. As assigned. Assistant Professor McDermott.

32. **Marine Machinery.** Advanced work. As assigned. Assistant Professor Thomas.

33. **Seminary.** One hour. Assistant Professors McDermott and Thomas.

34. **Specifications, Contracts, Estimates.** As assigned. Assistant Professor McDermott.

35. **Marine Auxiliaries.** As assigned. Assistant Professors McDermott and Thomas.

Department of Railway Mechanical Engineering. [E.]

Locomotive Drafting. Sophomores expecting to enter the Railway Department should make request for locomotive details in Mechanical Drawing course M.D. 5.

Electric Railways. Two terms. It is advised that course 25 of the Department of Electrical Engineering be commenced second term of the Junior year.

10. **Locomotive Shopwork.** At least one summer's work in constructing or repairing locomotives or cars is very emphatically advised and considered necessary previous to the railway senior year. Shops for the above are situated in all sections of the country. Wages have been paid to the inexperienced up to \$2.00 per day. Three and one-half months can usually be obtained, though three will be entirely satisfactory. Arrangements can be made through Professor Hibbard.

20. **Railway Machinery.** The designing, manufacture, service in operation, and repairing of locomotives, tenders and cars. Lect-

ures, reading and shop visits. Seniors and graduates. Credit, 4 hours each term. M., T., Th., F., 10. Professor HIBBARD.

21. **Designing.** Problems arranged to suit the class of work expected to be undertaken by the student after graduation. Juniors, seniors, and graduates. Three hours (nine hours in drafting room) per week from the beginning of the year to the Easter recess. Credit, 3 hours first term, 1 hour second term. The 1 hour may be replaced by Locomotive Testing, R. 23. Daily, 8 to 12, or afternoons, as may be arranged. Professor HIBBARD.

22. **Railway Club.** Discussion upon previously assigned railway journals. Special papers and reports. Forming of the individual Card Index. Training in addressing an audience. Juniors, seniors, and graduates. One hour. W., 9. Professor HIBBARD.

23. **Locomotive Testing.** "Instruction Tests" of boiler and engine, including traction dynamometer, by courtesy of the Delaware, Lackawanna & Western R. R., giving acquaintance with the instruments, locomotive connections, and methods of commercial road tests. Open only to railway seniors and graduates, and to juniors who may wish for a preliminary experience without credit. Elective in place of R. 21, 2d term. 1 hour first term. Professor HIBBARD and Mr.—.

30. **Advanced Railway Mechanical Engineering.** Lectures, directed reading, investigations, and Seminary discussions in amplification of course 20, taking up Shop and Round House arrangement, equipment and methods, Drafting Room Management, Compound Locomotives, Freight Car Design, Railway Testing and Test Department, Motive power supplies, Organization, methods and records of Motive Power Department, Discipline and Management of Men, Wage Systems, Foreign Railway Engineering, Outlines of Railway Operation and Management. Seniors 2d term, and graduates. As assigned. Professor HIBBARD.

31. **Plant Designing.** Rolling equipment, Round Houses and Shops. Advanced work. Seniors 2d term, and graduates. As assigned. Professor HIBBARD.

Suggested Electives: Political Economy; elementary transportation (2d term, F. 11, *Morrill 12*, Professor FETTER), labor, wages, corporations. Law; contracts and agency, carriers, injuries. Advanced railway quantitative analysis; anti-friction metals, iron and steel, boiler coverings, feed water and compounds, coal and its sulphur, waste, oils, paints and varnishes for wood and for steel. S.E. 30. M.A. 20, works administration. Experimental Engineering; 21, 22, 22a, 23, 30 in railway rolling stock, motive power equipment and supplies. M.D. 26, 22, 20, 27, 28. C.E.; advanced railroad engineering, structural details, masonry foundations.

THE UNIVERSITY LIBRARY.

LIBRARY COUNCIL.

For the purpose of making recommendations to the Board of Trustees in regard to the business administration of the Library, there has been established a Library Council consisting of the President of the University (who is *ex officio* chairman); the Librarian; one Trustee elected by the Board; and four professors elected by the University Faculty. The Council at present is constituted as follows:

JACOB GOULD SCHURMAN, President of the University.
CHARLES H. BLOOD, of the Board of Trustees.
GEORGE W. HARRIS, Librarian.
CHARLES H. HULL,
LOUIS M. DENNIS,
GEORGE P. BRISTOL,
EDWARD L. NICHOLS,
GEORGE W. HARRIS, Secretary.

} of the University Faculty.

LIBRARY STAFF.

GEORGE WILLIAM HARRIS, Ph.B., Librarian.
ANDREW CURTIS WHITE, Ph.D., Assistant Librarian in charge of Classification.
WILLARD HENRY AUSTEN, Assistant Librarian in charge of the Reference Library.
KATHARINE DAME, A.B., Assistant Librarian in charge of the Catalogue.
WILLARD WALDO ELLIS, A.B., LL.B., Curator of the Shelves.
MARY FOWLER, B.S., Cataloguer.
JENNIE THORNBURG, B.L., Cataloguer.
PHILENA REBECCA SHELDON, A.B., Assistant in the Accession Department.
ELIZABETH SAGE INGERSOLL, Assistant in the Order Department.
EDITH ANNA ELLIS, B.L., Assistant in the Circulation Department.
BERTHA WILDER, Assistant in the Reference Library.
FRANCIS HEMPERLEY HILLER, A.B., Assistant in the Reference Library.
GEORGE LINCOLN BURR, A.B., Librarian of the President White Library.
ALEXANDER HUGH ROSS FRASER, LL.B., Librarian of the Law Library.

PAUL EDGAR LESH, Assistant in the Law Library.
 JAMES PRENDERGAST STAFFORD, Assistant in the Law Library.
 WILLIAM HUGH SNOWDEN, Assistant in the Law Library.
 JULIA WHITON MACK, A.B., Librarian in charge of the Architectural Library.

The University Library comprises the General Library of the University, the seven Seminary Libraries, the Law Library, the Flower Veterinary Library, and the Library of the State College of Forestry. The total number of bound volumes in the University Library is now two hundred and eighty-six thousand four hundred and five distributed as follows :

General Library	244,912
Seminary Libraries	4,671
Law Library	32,840
Flower Veterinary Library	2,416
Forestry Library	965
Stimson Hall Medical Library	601
	286,405

The General Library of the University, the Seminary Libraries, and the Forestry Library are all grouped under one roof in the Library Building, while the Law Library has separate quarters in Boardman Hall and the Flower Veterinary Library in the State Veterinary College.

The University Library Building, the gift of the late Hon. Henry W. Sage, stands at the southwest corner of the quadrangle formed by the principal University buildings. It is built of light grey Ohio sandstone, and its construction is fireproof throughout. It is heated by steam from the central heating station, is provided with a thorough system of artificial ventilation, and fully equipped with incandescent electric lights. The extreme dimensions of the building are one hundred and seventy by one hundred and fifty-three feet, and it has a storage capacity of four hundred and seventy-five thousand octavo volumes. The general outlines of the ground plan are somewhat in the form of a cross, the book-stacks occupying the southern and western arms, the reading room and periodical room, the eastern, the White Historical Library, the seminary rooms, and the offices of administration, the northern. The abundantly lighted and handsomely furnished reading room contains ample accommodations for two hundred and twenty readers, and the open book-cases around its walls provide shelf-room for a carefully selected reference library of eight thousand volumes. In the basement, beneath the reading room, are to be stacks for the newspaper and patent collections, the circulating library, and a lecture room, with seating capacity for three hundred auditors. In the tower are placed the great bell of the University,

the gift of Mrs. Mary White, the chime of bells, the gift of Mrs. Jennie McGraw Fiske, and the University clock.

The income of an endowment fund of three hundred thousand dollars, the gift of the late Hon. Henry W. Sage, devoted to the purchase of books and periodicals, provides for a large and constant increase of the General Library, the average annual additions being now about twelve thousand volumes. The number of periodicals, transactions, and other serials, historical, literary, scientific and technical, currently received, is over two thousand, and of many of these complete sets are on the shelves.

Among the more important special collections which from time to time have been incorporated in the General Library, may be mentioned : THE ANTHON LIBRARY, of nearly seven thousand volumes, consisting of the collection made by the late Professor Charles Anthon, of Columbia College, in the ancient classical languages and literatures, besides works in history and general literature ; THE BOPP LIBRARY, of about twenty-five hundred volumes, relating to the oriental languages and literatures, and comparative philology, being the collection of the late Professor Franz Bopp of the University of Berlin ; THE GOLDWIN SMITH LIBRARY, of thirty-five hundred volumes, comprising chiefly historical works and editions of the English and ancient classics, presented to the University in 1869 by Professor Goldwin Smith, and increased during later years by the continued liberality of the donor ; THE PUBLICATIONS of the Patent Office of Great Britain, about three thousand volumes, of great importance to the student in technology and to scientific investigators ; THE WHITE ARCHITECTURAL LIBRARY, a collection of over twelve hundred volumes relating to architecture and kindred branches of science, given by ex-President White ; THE KELLEY MATHEMATICAL LIBRARY, comprising eighteen hundred volumes and seven hundred tracts, presented by the late Hon. William Kelley, of Rhinebeck ; THE CORNELL AGRICULTURAL LIBRARY, bought by the late Hon. Ezra Cornell, chiefly in 1868 ; THE SPARKS LIBRARY, being the library of Jared Sparks, late president of Harvard University, consisting of upward of five thousand volumes and four thousand pamphlets, relating chiefly to the history of America ; THE MAY COLLECTION, relating to the history of slavery, and anti-slavery, the nucleus of which was formed by the gift of the library of the late Rev. Samuel J. May, of Syracuse ; THE SCHUYLER COLLECTION of folk-lore, Russian history and literature, presented by the late Hon. Eugene Schuyler in 1884 ; THE RHETO-ROMANIC COLLECTION, containing about one thousand volumes, presented by Willard Fiske in 1891 ; THE PRESIDENT WHITE HISTORICAL LIBRARY, of about twenty thousand volumes (including

bound collections of pamphlets) and some three thousand unbound pamphlets, the gift of ex-president White, received in 1891, especially rich in the primary sources of history, and containing notable collections on the period of the Reformation, on the English and French Revolutions, on the American Civil War, and on the history of superstition; THE ZARCKE LIBRARY, containing about thirteen thousand volumes and pamphlets, especially rich in Germanic philology and literature, including large collections on Lessing, Goethe, and Christian Reuter, purchased and presented in 1893 by William H. Sage; THE DANTE COLLECTION, containing at present seven thousand volumes, presented in 1893-9 by Willard Fiske; THE HERBERT H. SMITH COLLECTION of books relating to South America, purchased in 1896; a valuable collection of books on French and Italian society in the 16th and 17th centuries, presented by Professor T. F. Crane in 1896; THE FLOWER VETERINARY LIBRARY, the gift of ex-Governor Flower to Cornell University, for the use of the State Veterinary College, in 1897; THE EISENLOHR LIBRARY, containing about one thousand volumes on Egyptology and Assyriology, purchased and presented in 1902 by A. Abraham.

The library is primarily a reference library, but officers of the University have the privilege of taking books from the library for home use, and this privilege, to a limited extent, is granted to graduate students and to seniors designated by their professors. Supplementing the reference library is a separate circulating library from which books may be taken for home use by any member of the University. The library is open on week days, during term time, from 8 A. M. till 11 P. M., except on Saturdays, when it is closed at 5 P. M. In vacation it is open on week days from 9 A. M. till 5 P. M.

All students of the University have free access to the shelves of the Reference Library of eight thousand volumes in the main reading room, but apply at the delivery desk for other works they may desire. This Reference Library comprises encyclopedias, dictionaries, and standard works in all departments of study, together with books designated by professors for collateral reading in the various courses of instruction. In the same room, and accessible to all readers, is the card catalogue of the general library, including also the books in the seminary libraries. The catalogue is one of authors and subjects, arranged under one alphabet on the dictionary plan. Cards of admission to the shelves in the stack-rooms, and to the White Historical Library, will be issued by the librarian to graduate students for purposes of consultation and research, and also to undergraduate students, engaged in advanced work, upon the recommendation of the professor in charge of the work.

Since its incorporation with the general library in 1891, the valuable historical collections of the PRESIDENT WHITE LIBRARY are displayed in a spacious room, in the north wing of the Library Building communicating directly with the historical seminary rooms. The White Library is open only to officers of the University, members of the seminaries, and others holding cards of admission. The SEMINARY ROOMS in the Library Building contain the seminary libraries proper, supplemented by collections of works and periodicals from the general library deposited in these rooms for use in seminary work. Books so deposited in the seminary rooms are available for the use of students in the general reading room, except when in actual use in the seminaries. The books forming the seminary libraries proper are subject to such regulations as may be made for each seminary room by the professor in charge, to whom application for admission to the room must be made. In several of the scientific and technical departments similar collections of reference books have been formed, access to which may be obtained upon application to the department concerned.

The Law Library occupies the third floor of Boardman Hall. It includes the well known library of the late Nathaniel C. Moak, which was presented in 1893, by Mrs. A. M. Boardman and Mrs. Ellen D. Williams, as a memorial to Judge Douglas Boardman, the first Dean of the College of Law. In reports of the Federal Courts, reports of the several American state jurisdictions, and in English, Scotch, Irish, and Canadian reports, the law library is practically complete to date. The other English-speaking countries are largely represented. The library also possesses a full complement of text-books and statutes, and complete sets of all the leading law periodicals in English, thus offering facilities for scholarly research second to none in the country.

BIBLIOGRAPHY.

The following courses are offered for 1904-05 :

1. **Introduction to the Use of Books.** A systematic study of Bibliographies, Indexes, Dictionaries, Cyclopædias, etc., including the principles of classification, cataloguing, indexing and preparing manuscript for printing. Lectures and exercises. First half year. T., 4:00.

Students desiring more of the laboratory work may elect one afternoon a week as assigned from 2:30-5 for which one hour credit will be given. Assistant Librarian AUSTEN.

2. **General Bibliography.** The materials and form of books in ancient times; books in the middle ages, block books, early printed books, illustrated by examples of manuscripts and incunabula; book-illustration, book-bindings; form-notation; systems of classification and cataloguing; general bibliographical aids. Second half-year. Lectures. T., 12. Mr. HARRIS.

THE SAGE CHAPEL AND BARNES HALL.

By the terms of the charter of the University persons of any religious denomination or of no religious denomination are equally eligible to all offices and appointments ; but it is expressly ordered that " at no time shall a majority of the Board of Trustees be of any one religious sect or of no religious sect." Religious services, provided for by the Dean Sage Preachership Endowment, are conducted in Sage Chapel by eminent clergymen selected, in the spirit of the charter, from the various religious denominations. These services are supplemented by the Christian Association, a voluntary organization of students and professors formed for their own religious culture, and the promotion of Christian living in the University. It has a permanent secretary and a carefully selected biblical library. Bible study courses are carried on throughout the year. A committee of the Association, in attendance at Barnes Hall during the first week of each year, assists new students in the matter of rooms, board, examination schedule, etc.

The Sage Chapel was given to the University in 1873 by the Hon. Henry W. Sage. In 1884 the University and estate of Jennie McGraw Fiske joined in erecting, upon the north of the original chapel, the Memorial Chapel, in memory of Ezra Cornell, John McGraw, and Jennie McGraw Fiske, whose remains there repose. In 1898 the University reconstructed the auditorium, or chapel proper, doubling the seating capacity, previously four hundred, and added the Memorial Apse, in memory of the original donor, the late Henry W. Sage, and as a repository of his remains and those of his wife, Susan Linu Sage, at whose suggestion the original gift was made. In 1903, through the generosity of Mr. William H. Sage, the chapel was not only again enlarged by the erection of an additional wing on the north side for the organ and choir loft, but in addition, the, whole interior was subjected to an elaborate scheme of redecoration (the work of Cottier & Co. of New York), so that Sage Chapel is now one of the most beautiful places of worship in America. During this same year, a beautiful Caen stone pulpit of elaborate design was erected in the Chapel "In memory of Dean Sage, 1841-1902, Founder of the Preachership in this chapel", by his surviving family.

The Sage Chapel proper, or auditorium, is in the Gothic style, built of red brick, with elaborately carved stone trimmings. There

are two north and two south gables, each containing a rose window of ten feet diameter, with stone tracery. In the west gable, which, with half the nave, is all that now remains of the old chapel, is a wheel window. The arched window formerly in the east end of the nave is now in the Memorial Apse. The place of the old tower, south transept, and east half of the nave is now included in two parallel transepts covering a space 64 x 66 feet.

The Memorial Chapel, built in the Gothic style of the second or decorated period, has exterior walls of red brick with stone trimmings, and interior walls of Ohio stone and yellow brick. It contains rich memorial windows by Clayton and Bell of London, designed to commemorate the connection of Mr. Cornell, Mr. McGraw, and Mrs. Jennie McGraw Fiske with the University and to associate their names with other great benefactors of education in older times. Directly beneath the north window is a recumbent figure of Ezra Cornell, in white marble, of heroic size, by William W. Story of Rome; near the entrance a smaller recumbent figure, that of Mrs. Andrew D. White, also in white marble, by Ezekiel of Rome.

The Memorial Apse is a semi-octagon, opening into the auditorium by a massive cut stone arch. The interior walls from window sills upward are of stone. The oaken ribs of the ceiling are carried on stone columns with carved capitals, supported by corbels. Below the line of the windows the wall of the Apse is covered with a scheme of Venetian mosaic; the work of Messrs. J. & R. Lamb of New York, which forms one of the most extensive schemes of figure mosaic yet attempted in this country. Processions of the Arts and the Sciences, impersonated in the figures of beautiful young women with appropriate symbols, lead up through Truth and Beauty, respectively, to a cowled, seated figure of Philosophy, "Philosophia", in the central space, over whose knees is unrolled the scroll of wisdom which he has been contemplating. On the vaulted ceiling above are emblazoned the symbols of Heaven, where angels and archangels stand or kneel in worship before the mysteries of the Cross. The heroic figures of the ceiling are depicted on a dark blue background. In the lower portion, the figures, which are all life-size, stand before a green hedge, with their faces displayed against a sky of gold.

Barnes Hall, the gift of the late Alfred S. Barnes, Esq., of New York, is the home of the Christian Association. This building is one hundred and twenty feet by eighty feet in dimensions, and three stories in height. The material is brick, with trimmings of Ohio stone, brown stone, and granite. On the north, the main entrance is

marked by a graceful tower rising to a height of one hundred feet. The building contains a secretary's room, assembly room, library, reading room, and all other needed accommodations for the work of the Association, in addition to a University trophy and lounging room, which has been recently fitted up on the first floor, and a spacious auditorium, which occupies a large part of the second floor. Besides the auditorium, there is a smaller class-room on this floor, the two being separated by a screen which in case of need is easily removed, thus throwing the entire second floor into one hall, and furnishing seating room for one thousand persons. The rooms are open daily from 8 A.M. to 8 P.M. to all students.

THE CORNELL INFIRMARY.

INFIRMARY COMMITTEE.

The Infirmary has been placed by the Board of Trustees in charge of a standing committee which consists of

ROGER B. WILLIAMS, of the Board of Trustees, Chairman,
JACOB GOULD SCHURMAN, President of the University,
EMMONS L. WILLIAMS, Treasurer of the University.

The Cornell Infirmary is the former mansion of the late Henry W. Sage, Chairman of the Board of Trustees. Its establishment is recorded by an inscription in the hall, which reads as follows : "This house built by Henry Williams Sage and occupied by him for seventeen years, was, at his death in 1897, endowed and given to Cornell University for a students' infirmary, as a memorial to their father, by his sons, Dean and William Henry Sage."

The building is a structure of Medina brownstone, 96 x 88 feet, including verandas and porches, and three stories in height, besides basement and a high attic. Through the first floor from south to north runs a wide hall having on the right a sitting room for young women, dining room, pantry, and kitchen, and on the left the library, used as a sitting room for young men, the Matron's office, bathroom, lavatory, telephone closet, and Matron's room. The height of these rooms is 12½ feet in the clear. On the second floor are six large rooms for the sick, two large bathrooms, a small nurses' kitchen, linen closets, a large room for surgical work, with an instrument room containing sink, cold and hot water, and a slop closet not connected with the bathrooms. The rooms on this floor are eleven feet high in the clear. The third floor contains the smoking room, three large rooms for patients, two nurses' rooms, two servants' rooms, a bathroom, nurses' kitchen, and slop closet. These rooms are 10½ feet in the clear. There is a balcony opening from one third-story sick-room, upon which a bed can be rolled. The basement contains a laundry, servants' bathroom, and the heating apparatus. The house is supplied throughout with gas and electric lighting, and heated by a system of hot water.

This building is at all times available as a home for students suffering from any except contagious diseases. Room, nursing, and ordinary food are all furnished to such students in the general ward for \$1.00 per day, with an extra charge for special rooms, special foods, and special nursing. In the course of the year 1903-04, 372 students were admitted.

ATHLETIC ASSOCIATION.

The Cornell Athletic Association is an independent organization incorporated under the laws of the State of New York. Its board of trustees is composed of one representative from the Executive Committee of the Board of Trustees, and four from the Faculties of the University, with one member at large, who together with representatives of the alumni, and eight students representing officially the different branches of athletics, besides the representative of the undergraduate wearers of the "C," and the president of the interscholastic league, constitute the Athletic Council. The Association owns Percy Field, the boats and boat houses, a steam launch and other athletic equipment. The Association issues an annual membership ticket on the payment of \$10.00. The holders of these membership tickets are entitled to free admission to every athletic contest under the management of the Association, which includes all games of baseball, football, track, and lacrosse. Members are also entitled to first choice of reserved seats, no reserved seat tickets for games or boat races being sold until the members of the Association have been supplied with the seats they require. No further subscription toward the support of athletics is solicited from holders of membership tickets. The Athletic Council is charged with the active management of the athletic interests of the University. The graduate treasurer is custodian of the funds belonging to the Association and to the various branches.

Fifty-five acres of land adjoining the University campus have been set aside by the trustees of the University for a new University Play-ground and Athletic Field, the construction of which has been undertaken by the Alumni.

Officers.

FRANK IRVINE	President
CHARLES HAZEN BLOOD	Graduate Treasurer
JOHN LAWSON SENIOR	Graduate Manager-Secretary

Members.

CHARLES HAZEN BLOOD	Executive Committee
DAVID FLETCHER HOY	At Large
EDWARD LEAMINGTON NICHOLS	Faculty
BLIN SILL CUSHMAN	Faculty
FRANK IRVINE	Faculty
EDWIN HAMLIN WOODRUFF	Faculty
JOHN LAWSON SENIOR	Graduate Manager
ANTON VONNEGUT	"C" Representative
EDWARD JOHNSON BLAIR	Navy Manager
CLARENCE EDWIN BOESCH	Commodore of Navy
LEON COWLES WELCH	Baseball Captain
JOSEPH GLEESON MURPHY	Baseball Manager
JAMES LYNAH	Football Captain
BENJAMIN OLIVER WILLIAMS	Football Manager
ANTON VONNEGUT	Track Captain
STONE HOWARD EHREICH	Track Manager
DONALD REED COTTON	Manager Interscholastic Track

SUMMER SESSION.

JULY 5TH TO AUGUST 16TH, 1905.

FACULTY.

- JACOB GOULD SCHURMAN, A.M., D.Sc., LL.D., President,
CHARLES DE GARMO, Ph.D., Dean of the Faculty, Professor of
the Science and Art of Education.
JOHN HENRY COMSTOCK, B.S., Professor of Entomology and
General Invertebrate Zoology.
LUCIEN AUGUSTUS WAIT, A.B., Professor of Mathematics.
GEORGE WILLIAM JONES, A.M., Professor of Mathematics.
JAMES EDWIN CREIGHTON, A.B., Ph.D., Sage Professor of Logic
and Metaphysics,
EDWARD BRADFORD TITCHENER, M.A., Ph.D., Sage Professor
of Psychology,
GEORGE PRENTICE BRISTOL, A.M., Professor of Greek.
CHARLES ALEXANDER McMURRY, Ph.D., (Director of Practice
Department Northern Illinois Normal School, DeKalb, Ill.),
Home and Grammar Grade Geography.
JOHN ALBRECHT WALZ, Ph.D., Professor of the German Lan-
guage and Literature.
STANLEY COULTER, Ph.D., (Professor of Biology, Purdue Uni-
versity), Nature Study.
ARTHUR TAPPAN WALKER, A.B., (Professor of Latin Language
and Literature, University of Kansas) Latin.
EDOUARD PAUL BAILLOT, L.H.D., (Professor of Romance Lan-
guages, Northwestern University), French.
— — — Professor of Economics.
— — — Professor of English.
GEORGE SYLVANUS MOLER, A.B., B.M.E., Assistant Professor
of PHYSICS.
WILLARD WINFIELD ROWLEE, B.L., D.Sc., Assistant Professor
of Botany.
HENRY NEELY OGDEN, C.E., Assistant Professor of Civil Engi-
neering.
BENJAMIN FREEMAN KINGSBURY, A.B., Ph.D., Assistant Pro-
fessor of Physiology.
CHARLES LOVE DURHAM, M.A., Ph.D., Assistant Professor of
Latin.

- ISAAC MADISON BENTLEY, B.S., Ph.D., Assistant Professor of Psychology.
- HENRY AUGUSTUS SILL, Ph.D., Assistant Professor of History.
- RALPH CHARLES HENRY CATTERALL, Ph.D., Assistant Professor of History.
- ALBERT CHARLES PHELPS, B.S., M.Arch., Assistant Professor of Architecture.
- ERNEST BLAKER, Ph.D., Assistant Professor of Physics.
- JOHN SANDFORD SHEARER, Ph.D., Assistant Professor of Physics.
- JOHN IRWIN HUTCHINSON, A.B., Ph.D., Assistant Professor of Mathematics.
- GUY MONTROSE WHIPPLE, Ph.D., Assistant Professor of the Science and Art of Education.
- OSKAR AUGUSTUS JOHANNSEN, B.S., Ph.D., Assistant Professor of Civil Engineering.
- ALBERT BERNHARDT FAUST, A.B., Ph.D., Acting Assistant Professor of German.
- ELIAS JUDAH DURAND, A.B., D.Sc., Instructor in Botany.
- BLIN SILL CUSHMAN, B.S., Instructor in Chemistry.
- ALEXANDER DYER MACGILLIVRAY, Ph.D., Instructor in Entomology.
- GEORGE MAXWELL HOWE, Ph.D., Instructor in German.
- WILLIAM BENJAMIN FITE, Ph.D., Instructor in Mathematics.
- WILLIAM ALBERT RILEY, B.S., Ph.D., Instructor in Entomology.
- CHESTER MURRAY, Ph.D., Instructor in Romance Languages.
- WILLIAM CROOKS THRO, A.M., Ph.D., Instructor in Nature Study.
- HUGH DANIEL REED, B.S., Ph.D., Instructor in Vertebrate Zoology.
- FRED ASA BARNES, M.C.E., Instructor in Civil Engineering.
- ARTHUR WESLEY BROWNE, B.S., M.S., Ph.D., Instructor in Chemistry.
- RAY HUGHES WHITBECK, A.B., (Supervisor in New Jersey State Normal School, Trenton, N. J.), Physical Geography and Geography Methods.
- GEORGE DAVID HUBBARD, M.S., A.M., Instructor in Geology and Physical Geography.
- ROBERT COYNER FENNER, B.S., M.E., Instructor in Physics.
- WILLARD JAMES FISHER, A.B., Instructor in Physics.
- WILLIAM CHAUNCEY GEER, A.B., Instructor in Chemistry.
- — — Instructor in Mechanical Drawing and Design.
- WILLIAM FREDERICK HEAD, Foreman in Forge Shop.
- JAMES EUGENE VANDERHOEF, Foreman of Foundry.

ALBERT EDWARD WELLS, Foreman of the Machine Shop.

CLAYTON BYRON BURKE, Foreman of the Wood Shop.

ROBERT EDWARD GABY, B.A., Assistant in Physiology.

HERMAN CAMPBELL STEVENS, A.B., Assistant in Psychology.

CHARLES LYMAN RAND, Assistant in Chemistry.

ELLA MAUDE CIPPERLY, A.B., Assistant in Botany.

— — — — Assistant in Psychology.

— — — — Assistant in Chemistry.

— — — — Assistant in Vertebrate Zoology.

— — — — Assistant in Vertebrate Zoology.

— — — — Assistant in Nature Study.

DAVID FLECTHER HOY, B.S., M.S., Registrar.

GENERAL STATEMENT.

The principal object of the Summer Session is to furnish instruction to teachers in high schools and academies; but provision is at the same time made for the instruction of college professors, university students, and others who are qualified to join the classes. No entrance examinations are required for the Summer Session.

Instruction is offered in all subjects which are embraced in the high school curriculum, including manual training; also in a number of subjects taught in elementary schools. Some courses suitable for graduate students are also provided.

Applications for admission to the graduate department of the University, and to candidacy for advanced degrees, are to be addressed primarily to the Dean of the University Faculty. Full details should be forwarded of the candidate's previous course of study, the degree desired, and the special preparation already had in the major and minor subjects to be pursued.

The applicant would naturally communicate also with the professors in whose departments he intends to study, as they must ultimately approve of his application.

Applicants who are duly admitted to candidacy for advanced degrees under the regular rules of the University Faculty, may receive such credit in time for graduate work done in the Summer Session, as may be determined by the appropriate committees of the University Faculty.

This credit in time is to cover only the actual period of residence and attendance, and is not to exceed one University year's allowance for the total amount of work so accomplished during various sessions.

CALENDAR—1905.

July 5—Registration.

July 6—Instruction begins.

August 16—Session ends.

TUITION.

The single tuition fee for the entire Summer Session, whether one course or more be taken, is \$25, and must be paid at the office of the Treasurer within ten days after registration day. No student is admitted without the payment of this fee.

Visitors are not allowed in the classes.

ADDITIONAL FEES FOR LABORATORY WORK.

In chemistry, a fee is charged for material actually consumed, and the student must make such deposit with the Treasurer as the Instructor may prescribe.

In physics, botany, and physiology, the fee is at the rate of \$1 for every five hours per week per term (or part thereof) of work in the laboratory; the entire fee to be paid to the Treasurer at the beginning of the term.

In shopwork the fee is \$10 to be paid to the Treasurer at the beginning of the term.

BOARD AND ROOMS.

The cost of living in Ithaca, including board, room and lights, varies from \$5 to \$8 per week. Accommodations may be secured as follows:

1. At Sage College; cost \$4 per week for table board, and from \$1 to \$2.50 per week for room, according to location. Ladies, also gentlemen accompanied by their wives, may find accommodation here, and a few rooms are reserved for single gentlemen. Every application for a room to be reserved must be accompanied by a deposit of \$5, otherwise the application is not registered. The amount of this deposit is deducted from the rent if the room assigned be occupied by the applicant; it is refunded if the applicant give formal notice to the manager on or before June 15th that it is desired to withdraw the application altogether.

Without special permission, no person will be allowed to room in Sage College or Sage Cottage during the Summer Session unless registered as a student in the Summer Session.

Those desiring to secure rooms at Sage College or the Cottage should address the Manager, Mr. George Franklin Foote. (See University Register, page 57.)

2. At private houses in the city, costs \$5 to \$7 per week.

CREDIT FOR WORK.

Regularly matriculated students of the University may receive credit to the extent of seven university hours for work done during the Summer Session.

Students of the Summer Session not matriculated in the University may receive certificates of attendance and satisfactory work done.

SPECIAL RAILROAD RATES.

A special railroad rate on "certificate" plan was granted students for the Summer Sessions of 1901, 1902, 1903 and 1904. An application will be made at the proper time for a similar reduction for 1905. For fuller information apply to Registrar, Cornell University, after May 15, 1905.

COURSES OF INSTRUCTION.

GREEK.

A. The Greek Language.

The following topics are treated : The physiological basis of speech. The elements of phonetics. The analysis and synthesis of sounds in English and in Greek. The pronunciation of ancient Greek in theory and in practice. The problems of accent. The development of the Greek alphabets as means of expressing sounds. Selected portions of the grammar dealing with inflexion and word-formation. The relation of Greek to Latin and to English. The Greek elements in English.

This course is intended to give teachers and students of Greek a firmer grasp of the language as *speech*. Further as it includes a study of the nature of language in general, and of the relations be-

tween Greek, Latin and English, it will be of value for teachers of any one of these. The lectures are accompanied by practical exercises in the study of anatomical preparations for the physiology of speech, of selected inscriptions showing the development of the alphabets, and of groups of words to illustrate the principles of etymology. Daily ex. S., 8, *White 3 B.* Professor BRISTOL.

B. Teachers' Course in Homer. The work of the course will center in the Iliad and will consist of three parts :

- (a) The reading and interpretation of selected portions of the Iliad.
- (b) The study of the language of the poem, and its relations to the Attic dialect ; the epic hexameter, its origin and development ; the principles of interpretation ; some features of life in the "Homeric period" ; the value of archæology for the understanding of the poem ; aims and methods of translating ; English translations since Chapman.
- (c) Discussions on the teaching of Homer ; the end to be kept in view ; practical difficulties in the work. The most valuable books and other auxiliary helps for the teacher. Daily ex. S., 9. *White 3 B.* Professor BRISTOL.

LATIN.

A. Course for Teachers.

a. *Pronunciation.* A brief discussion of the evidence in support of the Roman method. Practice in pronunciation and in the reading of Latin verse.

b. *Syntax of the Modes, especially the Subjunctive.* Meanings of the subjunctive in independent sentences. Development of the dependent clauses. Discussion of some of the more difficult constructions. Classification of examples found in parts of the preparatory authors.

c. *Syntax of the Tenses.* Uses of the indicative tenses in narration. Meanings and use of the subjunctive tenses. Is there a special "sequence of tenses" in the subjunctive?

d. *Purposes and Methods of Preparatory Study in Latin.* Why is Latin of value to the secondary student? The elementary work. In what order should the preparatory authors be read? The study of Caesar. Latin composition.

This course will be conducted largely by lectures. Prospective students should bring editions of Caesar, Cicero, and Virgil. Daily except Sat., 9, *Morrill 3.* Professor WALKER.

B. *The Odes of Horace.* The chief emphasis will be laid on the literary side of the work, and there will be careful practice in reading

the metres. Little attention will be given to grammatical questions. Daily except Sat., 10, *Morrill 3*. Professor WALKER.

C. Virgil. This course is intended primarily for those teachers in preparatory and high schools who desire an accurate knowledge of the various subjects that pertain to Virgil in general and to the teaching of the Aeneid in particular. The Aeneid, Books I-VI, will be studied carefully with reference to all the points that should be emphasized in elementary instruction. Daily except Sat., 11, *Morrill 3*. Assistant Professor DURHAM.

D. Latin Composition. This course is intended primarily for teachers of preparatory Latin composition. Exercises on dictated English idioms, with particular reference to sentences in which a given word or construction in English has several distinctly different Latin equivalents. Daily except Sat., 12, *Morrill 3*. Assistant Professor DURHAM.

ROMANCE LANGUAGES.

A. French conversation and composition, conducted in French. The course, which is intended for students having had at least two years of French, consists of daily drill work in conversation and composition, of frequent themes, short talks by the students on French literature, and a rapid course in French history. M., T., W., Th., F., 9. *White 2*. Professor BAILLOT.

B. Lectures in French on the great prose writers of the XIXth century, critics, historians, philosophers, essayists and political writers. T., Th., 11. *White 2*. Professor BAILLOT.

C. Readings from modern French drama. A rapid reading course of French comedies with comments and explanations in French. M., W., F., 11. *White 2*. Professor BAILLOT.

D. French Grammar and Reading for beginners. The grammar used will be that of *Fraser and Squair*. The object of the course is to give to those who have had no French the opportunity of learning the essentials of grammar and reading, which require, as a rule, almost a whole year's study. To accomplish this end very intensive work must be done. Two recitations a day will be held, with sufficient time between the two for the preparation of the second lesson, and the student is expected to devote his entire time to this subject. M., T., W., Th., F., S., 8 and 12 o'clock, *White 11*. Mr. MURRAY.

GERMAN.

A. Elementary German Grammar and Translation. The textbooks in this course will be Bierwirth's *Beginning German* and

Hewett's *German Reader*. The object of this course is to afford an opportunity for those who have had no German, to master the essentials of the grammar and translation during the period of the Summer School. An opportunity will thus be presented for those whose preparation in German is inadequate, to do the entire work in elementary German required for admission, (German 1). Two recitations a day will be held with ample time between the two for the preparation of the second lesson. The student is expected to devote his entire time to this subject. Daily, 9 and 12. *Morrill 6*. Assistant Professor FAUST.

Assistant Professor Faust will be in attendance in *Room 13, Morrill Hall*, T., Th., S., at 9, to afford special assistance to students who desire it.

B. **The Rapid Reading with comment of the Advanced Requirements for Admission in German (German 2):** Freytag's *Journalisten*, Schiller's *Wilhelm Tell*, Goethe's *Hermann and Dorothea*. The purpose of this course is to enable students who are deficient in the advanced requirements for admission to make up by extra work the entire amount required in this course. Two recitations a day will be held, with a sufficient interval to enable the student to prepare for the second recitation. Students electing this course are expected to devote their entire time to this subject. Daily, 8 and 12, *Morrill 13*. Dr. Howe.

Dr. Howe will be in attendance in *Room 6, Morrill Hall*, M., W., F., at 10, to afford special assistance to such students as desire it.

C. **Practical Exercises in German Composition.** The object of this course is to prepare students in advanced German to pass the requirements for admission in German Composition. M., W., F., 9, *Morrill 5*. Professor WALZ.

D. **Advanced German Composition and Conversation.** Course for teachers and advanced students. This course will be conducted entirely in German, in order to familiarize the student with the spoken language. T., Th., S., 9, *Morrill 5*. Professor WALZ.

E. **Lectures in German upon German Literature of the Eighteenth Century,** "Der Sturm und Drang in der deutschen Litteratur des 18. Jahrhunderts." The lectures will deal with Hamann, Herder, Goethe, Lenz, Klinger, and, if time permits, with the early dramas of Schiller. Daily, ex. S., 10, *Morrill 5*. Professor WALZ.

Professor Walz will be in attendance in *Room 5, Morrill Hall*, M., W., 11, for consultation and advice.

ENGLISH.

For particulars regarding courses, see Summer Session Announcement.

PHILOSOPHY.

A. The History of Philosophy in the Eighteenth and Nineteenth Centuries. Daily, ex. S., 8. *White* 9. Professor CREIGHTON.

In this course it is proposed to deal topically rather than biographically with the development of philosophical ideas during the last two centuries. The principles and conceptions underlying the rationalistic thought of the 18th century will be analyzed and explained, and their practical consequences traced in the resulting theories of knowledge and of morality, and in the fields of politics and literature. The growth and development of modern historical and evolutionary modes of thought will then occupy attention, and the course will conclude with an outline of the standpoint and attitude of philosophy at the present day.

B. Logic. Daily, ex. S., 10 (or at an hour to be arranged.) *White* 9. Professor CREIGHTON.

This class will cover the same ground as the elementary course in logic that is given during the regular session of the University. It will include the more essential and practical parts of Deductive Logic, the logic of the Inductive Methods, and an outline of the modern theories of the nature of Judgment and the Evolution of Thought.

PSYCHOLOGY.

A. General Psychology: Elementary Course. 1. Lectures and exercises. M., W., F., 9. Text-book: Titchener's *Primer of Psychology*. Professor TITCHENER. If only the lectures and examination are taken, this course counts as three hours; if the prescribed exercises are done, it counts as five hours.

2. Laboratory Practice. M., W., F., 2:30-5, with prescribed work on literature and record books. Text-book: Titchener's *Experimental Psychology, Qualitative*. Assistant Professor BENTLEY and Mr. STEVENS. This course counts as five hours.

B. Abnormal and Genetic Psychology. M., W., F., 8. Nine lectures on abnormal psychology (dreams, hypnosis, insanity), and nine on genetic (animal and child) psychology, with collateral reading and a weekly essay. Assistant Professor BENTLEY. This course may be taken along with Course A, and counts as five hours.

C. General Psychology: Advanced Course. I. Essays and prescribed reading or advanced laboratory work. Hours to be arranged. Professor TITCHENER and Assistant Professor BENTLEY.

SCIENCE AND ART OF EDUCATION.

A. Principles of Education. Lectures, discussions and readings. Daily, ex. S., II, *White 10*. Professor DEGARMO.

This course will present the general theory of education, following in the outline of Horne's *Philosophy of Education*.

B. Lectures on Secondary Education.

(a) **The Development of Secondary Schools.** First three weeks. Lectures, discussions and readings. Daily, ex. S., 10. *White 10*. Professor DEGARMO.

Comparative study of the development of secondary schools in Germany, France, England and the United States. Prescribed reading: Russell, German Higher Schools.

(b) **The Period of Adolescence.** Second three weeks. Lectures and prescribed readings. Daily, ex. S., 10. *White 10*. Assistant Professor WHIPPLE.

A study of the physical and mental characteristics of the adolescent with their significance in secondary instruction.

C. Educational Aspects of Psychology. Lectures and prescribed reading. M., W., F., 9. *White 7A*. Assistant Professor WHIPPLE.

The lectures outline a system of functional psychology, and indicate the significance to education of the physiological basis of mental life, plasticity and habit, attention and interest, association, perception, apperception, memory, imagination, conception, reasoning, instinct and action.

D. School Hygiene. Lectures, laboratory demonstrations and prescribed reading. T., Th., 9. *White 7A*. Assistant Professor WHIPPLE.

The course deals primarily with mental hygiene and the hygiene of instruction,—with such topics as fatigue, the period of study, school diseases, defects of sight and hearing, and, so far as time allows, with the hygiene of reading, writing and other studies.

E. Educational Conference. T., 2-4, or hours to be arranged. *White 7A*. Professor DEGARMO and Assistant Professor WHIPPLE.

Discussion of typical problems in education, with prescribed reading.

HISTORY.

A. Roman History from Augustus to Marcus Aurelius. A course of lectures intended primarily for teachers, with discussions

and reports. After reviewing the latter part of the revolutionary period the lectures will treat of the Augustan settlement of the constitution, the development of the powers of the Princeps especially under Tiberius, Claudius, Vespasian, Domitian, Trajan and Hadrian, the organization and government of the provinces, the protection of the frontier under the early emperors, the conquests of Trajan, the defensive policies of Hadrian and Marcus, the economic condition of the Roman world, and the development of jurisprudence, art and literature. Daily ex. S., 10. *Morrill 12.* Assistant Professor SILL.

B. **English Historical Biography.** A course of lectures on the lives and political careers of English statesmen from Alfred the Great and William the Conqueror to Disraeli and Gladstone. The attempt will be made to indicate in each case the sources of our information and materials for further study. The members of the class will prepare papers on historical characters not treated in the lectures. Daily ex. S., 11. *Morrill 11.* Assistant Professor SILL.

C. **European History.** The Revolutionary and Napoleonic Era (1789-1815). Lectures and discussions on the history of France and other continental states. Daily except S., 9. *Morrill 11.* Assistant Professor CATTERALL.

D. **American History.** The United States from the adoption of the constitution to the present. Lectures, discussions and reports. Daily, except S., 8. *Morrill 11.* Assistant Professor CATTERALL.

CIVICS, POLITICAL AND SOCIAL SCIENCE.

A. **The Development of Political Institutions.** A study of the origin of Civil Society and of the various typical political organizations from the primitive Village Community to the modern Democratic National State, leading to a comparison of the political institutions of the principal western nations. The political arrangements of the various periods and countries will be studied with special reference to the light they may throw upon the origin, character and value of those of our own country. The course will be conducted with a view to the needs of teachers of Civics. 5 hours. Professor _____.

B. **Practical Social Problems.** A discussion of current labor problems viewed from the social standpoint, and of some remedies for socially dangerous labor conditions. Among the specific topics considered will be : Conditions of Work, Remuneration and Housing of Factory Labor, Sweatshop Work, Woman's Work, Industrial Insurance, Industrial Education, Factory Legislation, Co-operation, Profit-Sharing, the work of the Consumer's League and of other vol-

unitary movements for the betterment of the conditions of wage workers. 3 hours. Professor ____.

C. **Contemporary Socialism.** A descriptive and critical account of existing Socialistic groups and parties in Germany, France, England and the United States—their organization, recent growth, present strength, aims, theories and methods—together with an attempt to set forth the meaning and significance of the Socialistic revolt against the existing Social Order. 2 hours. Professor ____.

MATHEMATICS.

A course will not be given unless at least three well prepared students register for it.

A. **Elementary and Advanced Algebra.** An advanced course on the elementary principles of Algebra. (a) Parts of Jones' Drill book in Algebra. Daily ex. S., 8. *White 21.* Professor JONES.

(b) Lectures on the theory of equations, series, and measures and multiples. M., W., F., II. *White 21.* Professor JONES.

B. **Solid Geometry.** A review in which about one-third of the time is devoted to plane geometry and the rest to solid geometry. Daily ex. S., 10. *White 17.* Dr. FITZ.

D. **Trigonometry.** An elementary course covering parts of Jones' Drill Book in Trigonometry. (a) Plane Trigonometry. Daily ex. S., at 9. *White 21.* Professor JONES.

(b) Spherical Trigonometry T., Th., S., II. *White 21.* Professor JONES.

E. **Analytic Geometry.** An elementary course covering parts of Tanner and Allen's Analytic Geometry. Daily ex. Sat., 8. *White 22.* Professor WAIT.

F. **Analytic Geometry.** An advanced course based on Salmon's Conic Sections. M., W., F., 10. *White 22.* Professor WAIT.

G. **Differential Calculus.** An elementary course covering Snyder and Hutchinson's Differential Calculus. Daily ex. Sat., 9. *White 22.* Professor WAIT.

H. **Integral Calculus.** An elementary course covering Snyder and Hutchinson's Integral Calculus. Two sections. Daily ex. Sat., 8, II. *White 17.* Assistant Professor HUTCHINSON.

I. **Differential Calculus.** An advanced course, based on Todhunter's and Williamson's Differential Calculus. T., Th., 10. *White 22.* Professor WAIT.

J. **Integral Calculus.** Lectures, accompanied by mimeographed notes. A short drill on the integration of various forms will be followed by a discussion of the conditions and criteria for integrability.

of any given function. Definite integrals, and methods for their evaluation. The gamma function. Curvilinear and multiple integrals. Daily ex. Sat., 9. *White 17.* Dr. FITE.

K. Differential Equations. An elementary course covering parts of Murray's Differential Equations. Daily ex. Sat., 8. *White 18A.* Dr. FITE.

L. Projective Geometry. Rye's Geometry of Position is made the basis of the course. Daily ex. Sat., 10. *White 18.* Assistant Professor HUTCHINSON.

PHYSICS.

(*The courses announced below are given during the regular year as university work. The lectures on general physics and laboratory work should usually be taken by those engaged in teaching elementary physics. It may be modified to meet special needs. For University credit in Summer School Physics, see end of announcement in Physics.*)

I, 2a, 7. Lectures in General Physics. A course of lectures and demonstrations in General Physics corresponding to those given in Courses I, 2a or 7 during the University year. No previous knowledge of Physics is required. The extensive equipment in lecture room apparatus possessed by the department greatly enhances the value of this mode of presentation. Subjects for 1905: Electricity Sound and Light. Daily ex. Sat., 12. Assistant Professor SHEARER.

I or 2 b. Recitations in General Physics. Two five-hour recitation courses in Physics will be given. The work covered will correspond to Courses I and 2b of the regular year. The topics for 1905 will be Electricity Sound and Light in parallel with the lectures of Course I. Daily ex. Sat. at 8. Assistant Professor SHEARER, Mr. FENNER, and Mr. FISHER.

2c, 2d. Physical Laboratory. This course is primarily offered for teachers of elementary physics in high schools and preparatory schools, and for those students who have had elementary text, book training, but no laboratory work in general physics. The equipment of the laboratory is such as to afford elementary experimental work in physical units and their relations, statics, kinetics-dynamics, heat, light, sound, electricity and magnetism.

A course may be arranged at the beginning of the session for each individual, covering as many or as few of the subjects outlined above as seems advisable. Occasional discussions of general interest may be held covering methods of observation, errors, curve drawing as a means of representing results, and the theory of particular experiments. In all other cases individual instruction is given.

University students having the requisite requirements of admission to course Physics 2c as given on page 160, may elect this course, following the schedule prescribed for regular work during the University year. Daily ex. S., 9-12. Assistant Professor BLAKER and Mr. FISHER.

3. Physical Experiments. This course comprises the work offered in the regular junior year in general physical laboratory practice to those having had the requisite elementary training in physics and mathematics. The course is recommended for those students desiring to advance their knowledge of the underlying principles of general physics and to gain laboratory experience. The work in the laboratory is supplemented by written reports in which the general theory and results obtained are discussed. These reports form a basis for the criticism of the work.

The equipment of the laboratory is such as to allow great latitude in the work. In connection with the laboratory is a reading room containing many works of reference. The instruction is entirely individual and a course may be arranged to meet the needs of each student.

Regular University students may elect work in this laboratory, subject to the regular requirements, for which see the end of this announcement. Sibley students will follow the regular order of the work for the college year. Daily ex. S., 9-12. Assistant Professor BLAKER and Mr. FENNER.

6. Advanced Laboratory Work in General Physics. Intended for those who have already completed routine courses and wish to take up special work. May be taken as preparation for research by students able to work largely independent of direct instruction. In special cases short investigations may be undertaken. Further details may be secured by correspondence. Daily ex. Sat., 8-12. Assistant Professor SHEARER.

4. Advanced Laboratory Work in Electrical Measurements. Tests and calibration of electrical instruments. Experimental study of dynamo machines, including tests of efficiency. Alternating and polyphase currents. Photometric and electrical tests of electric lamps. Daily ex. S., 8-12. Assistant Professor MOLER.

UNIVERSITY CREDIT.

Regular University students may receive credit toward graduation for summer work in 1905 as follows:

Course 1. Required in M.E. and E.E. 2d Term.

Course 2a. Required in M.D., Ag., Ar., elective A. 2d Term.

Course 2b. Required in C.E. elective A. 2d Term.

2 c or 2d. Required in C.E. elective A.

Course 3. Required in M.E. and E.E. elective A.

(One term of Physics 1 or 2 is required for entrance in Course 3.)

Course 4. Required in M.E. and E.E. .

In Course 4 one University hour of credit is given for each 30 hours of completed laboratory work. Students intending to secure University credit for this work must *complete* course 3 before starting this course. Others must satisfy the department that they are competent to undertake work of this nature.

CHEMISTRY.

A. **Introductory Inorganic Chemistry.** The course will be given in three parts:

1. *Lectures and demonstrations.* The lectures embrace the leading facts and fundamental principles of Chemistry. They are fully illustrated by experiments for the performance of which the extensive equipment of the Department of Chemistry is available.

2. *Laboratory work.* The laboratory is designed to afford a working knowledge of the chemical properties of the principal elements and compounds. Emphasis is laid upon the manipulation of apparatus, accuracy of observations and the quality of the notebook record. So far as possible the work is adapted to the individual needs of those electing the course. Especial attention is given to teachers of Chemistry in high schools who desire to study laboratory experimentation in an elementary way.

3. *Recitations.* The recitations are in the nature of quizes on the ideas presented in the lectures and laboratory, and on reading assignments in standard text books of Chemistry. The writing of chemical equations and the solution of problems are thoroughly considered.

The above course is equivalent to Course 1 offered during the University year. Daily exc. Sat., 8-12. Mr. GEER and Mr. RAND.

C. **Qualitative Analysis.** Elementary course for those who have had the equivalent of course A. A study in laboratory and classroom of the methods for detecting and separating the principal bases and inorganic acids. This is followed by the analysis of various substances, either in solution or in solid form, the composition of which is unknown to the student. Considerable emphasis is laid upon the writing of equations expressing the reactions involved in the work. Lectures and recitations. M., W., F., 11. Laboratory, daily ex. S., 1:30 to 4:30. Dr. BROWNE.

D. **Qualitative Analysis.** A more advanced course for those who have had the equivalent of course C. This course will include :

1. Experimental lectures on the analytical reactions involving oxidation and reduction, with a discussion of the expression of such reactions in the form of equations.
2. A study in laboratory and class-room of the methods for detecting each of the important acids in the presence of the others, together with the reactions involved, followed by the analysis of more complex mixtures than those assigned in course C.

3. A comparative study in the laboratory of different methods for detecting and separating the bases. 1 and 2 may be taken together if desired. 3 is open only to those who have had the equivalent of 2. Lectures and recitations. T., Th., II. Laboratory, daily ex. S., 1:30 to 4:30. Dr. BROWNE.

In connection with course D students with sufficient preliminary training may be afforded opportunity for original research, either upon appropriate subjects of their own selection, or along some line assigned by the instructor.

E. Quantitative Analysis. Elementary. An introduction to quantitative methods and the chemistry upon which these methods are based. Lectures, explanatory of the methods used, are first given: each student then performs simple analyses which involve the use of the apparatus ordinarily employed in analytical work. Two lectures, and ten hours in the laboratory per week. Mr. CUSHMAN.

Advanced work (see course F) may be taken by students who complete this course before the close of the session.

F. Quantitative Analysis. Advanced Special methods of Quantitative Analysis, both gravimetric and volumetric, such as are of sanitary and technical importance. Laboratory hours elective. Mr. CUSHMAN.

BOTANY.

General Announcement. The courses here announced are especially designed to aid teachers in their work in elementary courses, and the first two are intended for students who have had no previous training in botany, as well as for those who may wish to review. Excursions will be undertaken on Fridays or Saturdays, as a rule, an effort being made to give familiarity with the plants as they appear under natural conditions. The advanced courses are intended for those who feel the need of more thorough equipment for teaching. Both field and laboratory work will be undertaken in connection with them, the aim being to familiarize the student with taxonomic and morphological characters, as well as with plants as organisms in nature.

A. Elementary Plant Physiology and Morphology. The

term will be devoted to the study of the general principles underlying the processes of nutrition, growth, etc.; also a comparative study of the forms and reproduction of representative species of all the great plant groups: algae, fungi, liverworts, mosses, ferns, gymnosperms, and angiosperms. Lectures, M., W., F., at 8. Laboratory work, M., W., F., 9 to 1. Dr. DURAND and Miss CIPPERLY.

B. Special Morphology and Ecology of the Higher Plants. Studies of typical plants representing the angiosperms. Field studies also for the purpose of amplifying observations made in the laboratory. Practical field studies in plant distribution. Excursions to localities where plant formations of special interest occur. The preparation of an herbarium representing the local flora may be made in connection with this course. Photography will be a useful adjunct to the student's equipment. Lectures, T. and Th., at 8. Laboratory and field work, T. and Th., 9 to 1, and by appointment. Assistant Professor ROWLER and Miss CIPPERLY.

Advanced Courses.

C. Taxonomy and Embryology. Practice in the collection and identification of algae, bryophytes, and ferns. The student will become familiar in the field and laboratory with the commoner genera and species, especially those usually employed in class work. Attention will also be given to certain phases of the embryology and development of typical plants in the same groups, also in the gymnosperms and angiosperms, if found desirable. Lectures M., W., F., at 10. Laboratory and field work, on M., W., and F. afternoons. Dr. DURAND.

D. Trees and Shrubs. Taxonomic and biological studies of the trees, including field observations, also the study of the structure and development of wood. Lectures, T. and Th., at 10. Laboratory work T. and Th. afternoons and by appointment. Assistant Professor ROWLER.

PHYSIOLOGY.

A. General Human Physiology. Lecture-Conversations. This course is designed as a beginning course in Physiology, especially arranged for those who expect to teach Physiology in the secondary schools, and who wish to cover the entire subject.

Lee's American edition of Huxley's Physiology will be followed as a text book from which assignments will be made in advance. The topics assigned will be discussed, expanded and illustrated in the lecture periods. The lantern slides, charts, diagrams and physiological

apparatus with which the department is well equipped will be used to in illustration of the subject wherever possible. M., W., F., 10, Assistant Professor KINGSBURY.

B. Anatomical Physiology. Laboratory work. This course will consist in the careful and systematic dissection, under direct supervision, of the cat's body, together with the heart and brain of the sheep, in illustration of the structure, location and functions of the organs of the human body. Comparison will be made at every step with the conditions in the human body.

Microscopic preparations will be made showing the finer structure of the organs as they are studied in the gross dissection.

Designed for those who lack the necessary preliminary knowledge of anatomy as a basis for Physiology. Course B may be taken with advantage in connection with course A. M., W., F., 11-1. Assistant Professor KINGSBURY and Mr. GABY.

C. Advanced Physiology. Lecture course. Selected topics. The field of Physiology is so large that it cannot be satisfactorily covered in detail in a short time. Divisions of the subject will be chosen to suit as nearly as possible, the needs of those who take the course. The lectures will be illustrated by means of experiment and lantern slides. A general knowledge of the gross and fine structure of the body is presupposed in this course. The work may count, hour for hour, in the work in Physiology required of medical students at Ithaca. T., Th., 9. Assistant Professor KINGSBURY.

D. Experimental Physiology. Laboratory work. This course will cover the Physiology of (a) Digestion and Nutrition, (b) Muscle and Nerve; Heart and Circulation, (c) The Nervous System and Organs of Special Sense (particularly the Eye). Division (a), (b), or (c) may be taken or selected experiments from each group performed.

The work done in this course will be accepted, hour for hour, in place of the laboratory work required of medical students at Ithaca. Additional work may be taken M., W., F., 11-1 and S., 10-1, and the laboratory work of course 5 in the Department, required of medical students, thus completed. T., Th., 10-1. Mr. GABY.

The Department is well equipped with physiological apparatus for demonstration, illustration and experiment, such as ophthalmoscopes, perimeters, etc., kymographs and other recording apparatus; sphygmomanometers, sphygmographs, cardigraphs, and other heart and circulation apparatus; pneumographs, stethographs, etc., etc.; diagrams, lantern slides, etc.

VERTEBRATE ZOOLOGY.

A. General Vertebrate Zoology. Lectures at 9, daily ex. Sat., *McGraw* 5. Laboratory 10-1, and 2-4 daily, ex. Sat. The lectures will treat of the structure, development and systematic relationship of the various groups of vertebrate animals. In the laboratory representative forms will be dissected and studied in detail. Credit 7 hours. Dr. REED and Mr. _____.

B. Elementary Vertebrate Zoology. Lectures or recitations, T., Th., S., at 8. *McGraw* 5. Laboratory, T. and Th., 10-1 and 2-5, and S., 10-1. A short course for students who do not wish to devote their entire time to Zoology. Credit 3 hours. Dr. REED and Mr. _____.

C. Systematic Vertebrate Zoology. Lectures at 8, daily except Saturday. *McGraw* 5. Laboratory 9-1 and 2-4, daily except Sat. The lectures will treat of the principles of classification, the structures or parts employed in classification, the life-histories and habits in detail, and the economic value of the more common vertebrates of the Eastern United States. In the laboratory representative species will be identified. For the laboratory work upon birds, Chapman's "Handbook of the Birds of Eastern North America," 6th edition, will be used as a manual. For the other groups, Fishes, Batrachians, Reptiles and Mammals, Jordan's "Manual of the Vertebrates," 9th edition, will be employed. As field-work, typical localities will be visited and the vertebrate fauna studied. In connection with the field work, practice will be given in making, preserving and labeling scientific collections. Individual collections may be made if desired. Credit 3 hours.

NOTE.—Persons intending to take either of the above courses should notify the Instructor in charge before June 1, in order that material may be provided. Credit 7 hours. Dr. REED and Mr. _____.

D. Advanced Work. Daily, except Sat., 8-4. This course is designed for those who have completed the equivalent of courses A-C and desire to take up Advanced or Research Work. Comparative Anatomy, with Wiedersheim's Comparative Anatomy as a text, may be taken in this course. Forty actual hours in the laboratory will be counted as one hour of University credit. Dr. REED, Mr. _____ and Mr. _____.

ENTOMOLOGY.**I. Elementary Entomology.**

A. Insect Life. Lectures on the classification of insects and on the habits of insects, with special reference to materials available for nature-study. M., W., F., 8. *White* 12. Professor COMSTOCK.

B. Insect Life. Laboratory practice in the classification of insects ; studying the life-history of insects in breeding cages such as may be used in the school room ; the making of aquaria and study of aquatic insects ; field excursions for studying the habits and haunts of insects. Two afternoons a week by appointment. Mr. THRO.

Course B is open only to students who are taking Course A.

II. Advanced Entomology.

The following courses are of an advanced nature ; and only those students of this University who have taken courses 1 and 3 in the Announcement of Courses for the Academic year or courses A and B are admitted to them. Teachers and others desiring to join the class without previously attending the University, should state in their application the amount of zoological work they have done.

C. Introductory Course. Elementary morphology of insects and systematic entomology. Laboratory work, and one excursion per week. Daily ex. S., 8-5. *White 11, 12, 20.* DRS. MACGILLIVRAY and RILEY.

D. Ecology of Insects. Lectures and field work on the habits of insects, and their relation to their environment. M., 2-5. *White 12.* Professor COMSTOCK.

Course D is open only to students who are taking at least two hours of course C. Credit is given as for laboratory work.

E. Research in Entomology. Special work arranged with reference to the needs and attainments of each student. Daily ex. S., 8-5. Professor COMSTOCK and DRS. MACGILLIVRAY and RILEY.

Courses 6, 7, 10, 11 and 14 in the Announcement of Courses for the Academic Year may be taken during the Summer Session.

GEOGRAPHY AND GEOLOGY.

For particulars regarding course, see Summer Session Announcement.

NATURE STUDY.

The courses in Nature Study will be conducted by Professor COULTER and Mr. THRO. See Summer Session Announcement.

DESCRIPTIVE GEOMETRY.

A. Descriptive Geometry. This course is equivalent to courses 8 or 9, Register, page 374. A study of the representation of lines, planes, surfaces, and solids ; and of their inter-relation ; tangents, intersections, and developments ; warped surfaces ; shades and shadows ; perspective. The subject is presented by lectures, and the student

is expected to establish the principles and methods presented by graphical solution of original problems, worked out in the drawing hours. Lectures, daily ex. S., 8. Drawing, daily ex. S., 9-12. *Lincoln Hall*. Assistant Professor OGDEN.

MECHANICS OF ENGINEERING.

A. Mechanics. This course is the equivalent of the first term of course 20, College of Civil Engineering. Admission to this course is restricted to those already having a fair knowledge of the subject. Students in Cornell University Engineering courses are not admitted to this course, unless they have taken the first term of course 20 in University classes during the regular University year and received a mark of at least 41. Those taking it are not, in the main, permitted to take other work in the University. Problems form the basis of this work; a rapid review of parts of Church's "Mechanics of Engineering" is also involved. A study of the principles and applications to engineering of the mechanics of solids. Statics. Centers of gravity. Chains and cords. Dynamics of a material point. Impact. Virtual velocities. Centripetal and centrifugal forces. Moments of inertia of plane figures. Elementary principles of work and energy. Stresses and strains. Tension. Shearing. Compression. Torsion. Elementary problems in flexure. Lectures, recitations and problems, daily, except Saturday, 9, 10. *Lincoln Hall* 32, 34. Assistant Professor JOHANNSEN and Mr. BARNES.

B. Mechanics. This course is the equivalent to the second term of course 20, College of Civil Engineering. The restrictions in this course are the same as in Mechanics A above. Advanced problems in flexure. Elastic curves. Safe loads. Continuous girders. Moments of inertia of solids. Dynamics of rigid bodies. General principles of work and energy. Power. Fly-wheels. Friction. Dynamometers. Belting. Graphic statics of mechanism. Elementary principles of hydraulics. Recitations, lectures, and problems, daily, except Saturday, 10, 11. *Lincoln Hall* 32, 34. Assistant Professor JOHANNSEN and Mr. BARNES.

HISTORY OF ARCHITECTURE.

General Announcement.—The courses offered are not strictly technical but are general culture courses designed to meet the needs of teachers of classic literature and history and of those persons who may contemplate travel and study abroad. The aims of the courses are to trace the origin, growth and decline of the architectural styles and

to show how they have reflected the great movements of civilization, to familiarize the student with the master-pieces of architecture and to cultivate a taste for and appreciation of what is good in modern as well as in ancient work.

A. History of Ancient and Mediaeval Architecture.--Lectures. Special attention will be given to the classic architecture of Greece and Rome and to the great Gothic monuments. Illustrated with lantern-slides, photographs and models. Daily except S., 9. Lincoln 29. Assistant Professor PHELPS.

B. History of Renaissance and Modern Architecture. Lectures. The architecture of the Renaissance and of the 17th, 18th and 19th, centuries in Italy and other European countries; Colonial and recent architecture in the United States. Illustrated with lantern slides, and photographs. Daily except S., 12. Lincoln 29. Assistant Professor PHELPS.

MECHANICAL DRAWING AND DESIGNING.

A. Mechanical Drawing. Use of instruments, geometrical problems, orthographic projection, inking and tinting, shading and shade lines, lettering, isometrical drawing, working drawings and conventions. 2 to 5 P. M. daily except Saturday. *Sibley 201.* Mr. ____.

B. Elementary Designing. Problems in machine drawing and designing. 2 to 5 P. M. daily except Saturday. *Sibley 201.* Mr. ____.

C. Kinematic Drawing and Machine Design. 2 to 5 P. M. daily except Saturday. *Sibley 201.* Mr. ____.

These courses can be arranged to suit individual needs; they are especially suitable for teachers of manual training.

Course A is designed for beginners or those who desire to obtain a more perfect knowledge of approved methods in modern practice.

In course B the principles, methods, and conventions of course A are applied to the drawing and designing of general machine and engine details and small machines.

Course C consists of problems in irregular curves, cams, gears, chain wheels, linkages and hoisting machinery. This covers the regular Junior course in Machine Design M.D. 10.

Many valuable samples and models of machines and details of machines and engines are used to illustrate the problems in these courses.

MECHANIC ARTS: BASIS FOR MANUAL TRAINING.

A. Pattern Making. Use of wood-working tools; elements of pattern making. Four hours. Daily as assigned, 8-12, 1-5. Mr. BURKE, Foreman.

B. Foundry Work. Moulding, casting, mixing of metals, operation of furnaces, etc. Four hours. Daily as assigned, 8-12, 1-5. Mr. JAMES VANDERHOEF, Foreman.

C. Forge Work. Forging, welding, tool-dressing, tempering, etc. Four hours. Daily as assigned, 8-12, 1-5. Mr. HEAD, Foreman.

D. Machine Work. Use of measuring tools; hand and machine tools; fitting and assembling. Four hours. Daily as assigned, 8-12, 1-5. Mr. WELLS, Foreman.

While the work given in this department during the summer is practically the same as given during the regular session, special attention is given to individual needs; teachers can therefore obtain instruction along lines most suited to their wants. No assignment will be made for less than four hours.

ASSOCIATE ALUMNI.

By the charter of the University the graduates are entitled to elect two of the Board of Trustees each year. At a meeting called for the purpose, and held on Wednesday, June 26, 1872, the day preceding the annual Commencement, representatives of all the classes that had graduated being present, the alumni formed an organization under the name of the Associate Alumni of Cornell University, declaring the object of the association to be to promote in every proper way the interest of the University and to foster among the graduates a sentiment of regard for each other and attachment to their Alma Mater. In 1903, the Association became incorporated, under the general laws of the State of New York, under the name of the Associate Alumni of Cornell University for the same purposes for which it was originally organized, the certificate of incorporation being dated May 19, 1903. At the annual meeting in June, 1903, a revision of the by-laws, embodying such changes as were made necessary by the incorporation of the association, was submitted by the directors and adopted by the association.

BY-LAWS OF THE ASSOCIATE ALUMNI OF CORNELL UNIVERSITY.

ADOPTED JUNE, 1903.

1. All graduates of this University, who in their diplomas are entitled electors of the University, are members of this association. All members of the Faculty of this University are honorary members of this association.

2. The officers of this association shall consist of (1) a president; (2) vice-presidents to be elected as follows: one vice-president from the classes numbered from '69 to '74 inclusive, and one from each succeeding group of five classes, provided that when the last group shall number three classes it shall thereafter be entitled to a vice-president; (3) a corresponding secretary; (4) a recording secretary; (5) a treasurer; and (6) five persons who, together with the president and treasurer shall constitute the directors of the association.

3. This association shall meet annually on the day preceding Commencement, at such hour as the Board of Directors shall determine.

4. Any proposition to alter or amend these By-Laws must be made at a regular meeting and have the assent of two-thirds of the members present.

5. There shall be two standing committees: an auditing committee; and a canvassing board.

6. The auditing committee shall consist of three members, to be elected by the association at one ballot, the three members receiving the highest number of votes to be deemed and taken to be chosen.

7. The canvassing board shall consist of five members. Two shall be elected by a plurality vote at each annual meeting; two shall be appointed by the Board of Directors, after the nominations of candidates for alumni trustees have been announced; the fifth shall be appointed by these four.

8. The order of business at each regular meeting shall be as follows:

I. The secretary shall ascertain by roll call or otherwise the names of the members present.

II. Reading the minutes of the last meeting.

III. Report of the canvassing board; declaration of the result of the ballot by the president; action thereon by the association, if necessary.

IV. Appointment of committee for the nomination of officers and committees—such nominating committee to consist of one member from each group entitled to a vice-president.

V. Treasurer's report and report of auditing committee.

VI. Report of the Board of Directors.

VII. Reports of special committees.

VIII. Miscellaneous business.

IX. Alumni trustee report or reports.

X. Report of nominating committee and election of officers and committees.

XI. Adjournment.

9. It shall be the duty of the corresponding secretary to keep a list of the graduates and their post office addresses, to notify each member elected to an office or a committee of his election, and to send to each graduate a notification of the time of the meeting other than the regular annual meeting, and of other exercises to take place under the auspices of the association.

10. The duties of the recording secretary shall be to keep the record and report the proceedings of the association.

11. All officers and members of committees shall be elected by a plurality vote of those present at the meetings and voting.

12. At this meeting there shall be elected five directors, the terms of two of whom shall expire at the annual meeting in 1904, two in 1905 and one in 1906, and in the future the term of each director shall be three years.

13. All other officers of this association shall hold their office for one year from and after their election.

14. In the absence of the president a vice-president shall preside, and the right to the chair shall be according to the seniority of the class to which the vice-presidents present shall belong.

15. In all meetings of the association the members present shall constitute a quorum.

16. The annual dues of membership in the Associate Alumni shall be one dollar, payable to the treasurer at each annual meeting; but any alumnus who shall pay to the treasurer ten dollars at one time shall thereafter be exempt from the payment of annual dues. No printed document of the association shall be sent to any member who has not complied with the above regulation.

17. Each trustee representing the alumni shall make a written report to the association at the end of his term of office, and such report may be made either jointly or separately by the retiring trustees.

18. Such report or reports shall be printed by the association, but shall not be considered as an expression of the official opinion of the association.

19. There is established an alumni bureau for the promotion of the interests of graduates or other ex-students of the University in securing positions.

20. The alumni bureau shall be under the general oversight of the Board of Directors of the association and the special charge of the Registrar of the University.

By an amendment to the charter of the University, passed May 15, 1883, permitting members of the alumni, not present in person, to vote by written ballot at the annual election of trustees, the Treasurer of the University is required to keep "a registry of the signature and address of each alumnus." It is therefore important that each alumnus keep the Treasurer of the University informed of his full address (in cities, street and number), and notify him immediately of any change.

The following ordinance was adopted by the Board of Trustees, October 24, 1888: All graduates of the first degree, in any of the de-

partments of Cornell University, and all persons who have been admitted to any degree higher than the first in said University shall be alumni of said University, and as such be entitled to vote for alumni trustees under and in pursuance of the provisions contained in Chapter 763 of the Laws of New York, passed in 1867.

Officers for 1904-5.

President—Morris L. Buchwalter, '69.

Vice-Presidents—Julius Chambers, '70; Charles S. Harmon, '75; Edwin H. Sibley, '80; John Van Sickie, '85; John Ford, '90; Arthur W. Barber, '95; Joseph H. Gould, '00.

Corresponding Secretary—Charles H. Hull, '86.

Recording Secretary—George W. Harris, '73.

Treasurer—Stephen E. Banks, '95.

Directors—Morris L. Buchwalter, '69; Stephen E. Banks, '95; George W. Harris, '73; Mynderse Van Cleef, '74; Jared T. Newman, '75; Ernest W. Huffcut, '84; Charles D. Bostwick, '92.

Auditing Committee—George S. Tarbell, '91; George L. Burr, '81; William H. Smith, '73.

Canvassing Board for Trustees Election—Charles L. Crandall, '72; Clark S. Northup, '93; remaining members to be appointed as directed in the By-Laws.

Officers of Local Alumni Associations.

(As last reported.)

CENTRAL NEW YORK ASSOCIATION.

President—

Secretary—E. F. McKinley, '93, Freeport, N. Y.

ITHACA ASSOCIATION.

Secretary—D. F. Van Vleet, '77.

NORTHWESTERN ASSOCIATION.

President—O. L. Taylor, '81.

Secretary—R. H. Crooker, '83, N. Y. Life Bldg., Minneapolis, Minn.

NEBRASKA ASSOCIATION.

President—A. C. Wakely, '78, Omaha Neb.

Secretary—J. W. Battin, '90, Omaha, Neb.

NEW ENGLAND CORNELL CLUB.

President—H. J. Messenger, '80.

Secretary—L. E. Ware, '92, 108 Austin St., Worcester, Mass.

CORNELL UNIVERSITY CLUB OF NEW YORK CITY.

President—C. J. Shearn, '90, 56 Wall St., New York City.
Secretary—J. R. Lewis, '95, 31 Nassau St., New York City.

NORTHEASTERN PENNSYLVANIA ASSOCIATION.

President—G. B. Davidson, '84, Scranton, Pa.
Secretary—F. L. Brown, '82, Scranton, Pa.

PHILADELPHIA ASSOCIATION.

President—J. M. Dodge, '72.
Secretary—A. Wood, '91, West Philadelphia, Pa.

WASHINGTON ASSOCIATION.

President—J. B. Foraker, '69.
Secretary—H. H. Burroughs, '94, 513 7th St., Washington, D. C.

CORNELL ALUMNI ASSOCIATION OF BUFFALO.

President—Eugene Cary, '78.
Secretary—R. M. Codd, Jr., '97, Buffalo, N. Y.

ROCKY MOUNTAIN ASSOCIATION.

President—R. W. Corwin.
Secretary—A. S. Proctor, 1640 Araphoe, Denver, Col.

CHICAGO ASSOCIATION.

President—D. F. Flannery, '76.
Secretary—C. M. Howe, 815 Grove St., Evanston, Ill.

PACIFIC NORTHWEST ASSOCIATION.

President—J. A. Rea, '69, Olympia, Wash.
Secretary—Frank D. Nash, '72, Tacoma, Wash.

EASTERN NEW YORK ASSOCIATION.

President—R. G. Scherer.
Secretary—R. J. LeBoeuf, '92, Municipal Gas Co. Bldg., Albany, N. Y.

ROCHESTER ASSOCIATION.

President—J. R. Davy, '94.
Secretary—C. A. Simmons, 32 City Hall, Rochester, N. Y.

SOUTHERN TIER ASSOCIATION.

President—John Bull, Jr., '85, 114 Lake St., Elmira, N. Y.
Secretary—D. N. Heller, '88, Elmira, N. Y.

CORNELL CLUB OF WESTERN PENNSYLVANIA.

President—G. Dusinberre, '86.
Secretary—H. M. Bostwick, '01, Edgewood Park, Pa.

CORNELL CLUB OF BINGHAMTON.

President—C. G. Wagner '77.

Secretary—J. Marcy, Jr., '01.

CORNELL CLUB OF CALIFORNIA.

President—D. S. Jordan, '72.

Secretary—C. L. Cory, '91, Berkeley, Calif.

CORNELL CLUB OF LONDON.

President—O. Shiras, '97.

Secretary—S. B. Fortenbaugh, '90.

JAMESTOWN ASSOCIATION.

President—C. D. Eckler, '99.

Secretary—Miss R. Bentley, '02.

THE CORNELL WOMEN GRADUATES' ASSOCIATION.

President—Mrs. S. H. Gage, '80.

Secretary—Miss K. Connor, '98.

Meetings at Ithaca annually on afternoon of Alumni Day.

TOLEDO ALUMNI ASSOCIATION.

President—W. J. Sherman, '77.

Secretary—W. A. Clarke, 16th and Jefferson Sts., Toledo, O.

SEATTLE ALUMNI ASSOCIATION.

President—F. J. Barnard.

Secretary—M. M. Odell, '97.

DETROIT ALUMNI ASSOCIATION.

President—M. T. Conklin, '72.

Secretary—E. E. Haskell, '79, Detroit, Mich.

NIAGARA FALLS ALUMNI ASSOCIATION.

President—Eugene Cary, '78.

Secretary—F. L. Lovelace, '80, Niagara Falls, N. Y.

THE CORNELL CLUB OF ST. LOUIS.

President—W. Trelease, '80.

Secretary—M. A. Seward, '97, 700 Carleton Bldg., St. Louis, Mo.

THE CORNELL UNIVERSITY ASSOCIATION OF DELAWARE.

President—G. R. Thompson, '75, Wilmington, Del.

Secretary—A. D. Warner, 1900, Wilmington, Del.

CORNELL ALUMNI ASSOCIATION OF THE PHILIPPINE ISLANDS.

President—A. G. Heppert, '93.

Secretary—Clara Donaldson, '01, Dept. of Education, Manila, P. I.

Alumni Bureau.

The Alumni Association voted at its meeting in June, 1890, to establish in the University an Alumni Bureau, and at the annual meeting in June, 1896, incorporated in the By-Laws of the Association the following provision: "There is established an Alumni Bureau for the promotion of the interests of graduates or other ex-students of the University in securing positions. The Alumni Bureau shall be under the general oversight of the Board of Directors of the Association and in the special charge of the Registrar of the University." In accordance with this resolution, a permanent Bureau has been constituted where names are registered with a record of the position desired and of the study and experience of those who wish situations. To render this organization in the highest degree efficient, it is desired that all interested should communicate as early in the year as possible to the Registrar of the University information of vacancies which may occur in public positions which graduates are prepared to fill. Former students can thus render a constant service to the University, and to successive classes as they graduate. A list of such situations is kept and is available for consultation by all students. Blank forms will be furnished on application to the Registrar.

Class Memorials.

(As reported.)

- CLASS OF 1872:—Seventy-two Elm Trees bordering President's Avenue and northern half of East Avenue.
- CLASS OF 1873:—Drinking Fountain in front of McGraw Hall.
- CLASS OF 1878:—The Class Pipe.
- CLASS OF 1879:—Bronze Tablet containing bust of Bayard Taylor in Sage Chapel.
- CLASS OF 1883:—Portrait of Professor William Dexter Wilson, D.D., LL.D., in University Library.
- CLASS OF 1884:—Portrait of Professor Charles Chauncey Shackford, A.M., in University Library.
- CLASS OF 1885:—Statue of Augustus Caesar in the Museum of Casts.
- CLASS OF 1886:—The '86 Memorial Prize in Declamation. *See University Register, p. 61.*
- CLASS OF 1890:—Cornell Boat House.
- CLASS OF 1891:—The '91 Memorial Fund for Sick Students.
- CLASS OF 1892:—Witherbee Memorial Club House at Percy Field.
- CLASS OF 1893:—Interscholastic League Prizes in Athletics.
- CLASS OF 1894:—The '94 Memorial Prize in Debate. *See University Register, p. 62.*

- CLASS OF 1895 :—The Henley Shell.
CLASS OF 1896 :—Gift toward the establishment of an Alumni Hall.
CLASS OF 1897 :—Gift toward the establishment of an Alumni Hall.
CLASS OF 1898 :—Gift toward the establishment of an Alumni Hall.
CLASS OF 1898 (College of Law) :—Carved oak seat in Boardman Hall.
CLASS OF 1899 :—Gift toward the establishment of an Alumni Hall.
CLASS OF 1900 :—Gift toward the establishment of an Alumni Hall.
CLASS OF 1901 :—Gift toward the establishment of an Alumni Hall.
CLASS OF 1892 :—Gift toward the establishment of an Athletic Field.
CLASS OF 1903 :—Gift toward the establishment of an Athletic Field.
CLASS OF 1903 (College of Law) :—Portraits of Justice Rufus W. Peckham and Joseph H. Choate.
CLASS OF 1904 :—Gift toward the establishment of an Endowment Fund.
CLASS OF 1904 (College of Law) :—Portraits of James C. Carter and Elihu Root.

THIRTY-SIXTH ANNUAL COMMENCEMENT.

June 23, 1904.

DEGREES CONFERRED.

FIRST DEGREES.

Bachelors of Arts.

Katharine Alexander,	Elizabeth Cassidy, B.S.,
Caroline Louise Allen,	Archibald Eastwood Chace,
Flora Keppel Allen,	Ella Maude Cipperly,
Harris Calvin Allen,	Laurence Bowman Clapp,
Elizabeth Atkins Ashburner,	Anna Maud Coburn,
Ernest George Atkin,	Albert Reeves Coffin,
Frederic Stanley Auerbach,	Arthur Alexander Costello,
Harold Field Avery,	Mary Merritt Crawford,
Archibald Tanner Banning, Jr.,	Sara Adams Crosby,
Louise Blanche Barbour,	Ralph Adam Cross,
Charles Edward Barie,	Edward Gordon Cuddeback,
William Hector von Bayer,	Charles Evelyn Cutler,
Henry Emile Behnken,	James Lee Davis,
Romeyn Berry,	Roy Bingham Davis,
Ethelyn Felice Binkley,	Claude Thomas Dawes,
Jessie Amelie Blauvelt,	Isaac Carleton Dederer,
Gertrude Bloomingdale,	Nina A Dennis,
John Richard Worthington Bonner,	Joseph Lawrence Desbecker,
Charles Philip Brady,	Howard Weddle Douglass,
Henry De Nyse Brinley,	Christian McKee Dravo,
Charles Macdonald Brown, Jr.,	Florence Lee Duvall,
Edward Dudley Bryde,	Myra Townsend Edgerton,
Henry Burgweger,	Ethelyn Isadora Edwards,
Eleanor Irene Burns,	Merrill Osgood Evans, Jr..
Roy Burnham Buttolph,	Anna Feehan,
Isabel Caldwell,	Bernhard Edward Fernow, Jr.,
Anna Myrtle Carr,	Alice Armenia Fish,
William Paxton Cary,	Stuart John Flintham,

Wallace Russel Foster,
Henry Louis Frank,
Harry Charles Frey,
Ada Catharine Fritts,
Robert Wilson Fullerton,
Sara McDowell Gaither,
Frederick Loren Gallup,
Morgan Bidleman Garlock,
Beatrice Azalea Gilson,
Charles Edward Goodrich,
Abbey May Goodwin,
Norman Goodwin,
Arthur Gordon,
Susan Philippa Graham,
George Richard Grant,
Emma Grauman,
Emma Zoe Griffin,
Lewis Ransom Gulick,
May Gundersen,
Ruth Marion Hall,
Robert John Halpin,
Henry Crane Hasbrouck,
Gladys Eliza Hobart,
Richard Hayes Hobbie,
Lucy Agnes Hogan,
Margaret Elizabeth Hogan,
William James Hogan,
Ellen Greene Holden,
Lona Emily Hooker,
Charles Walter Howard,
Eugene Clarence Howe,
William Earnest Huchting,
Frank Hunter,
Charles William Hyde,
Edward Clarence Jacobs,
Everett Williams Jameson,
Alceste Roxanna Jenkins,
Edith Samantha Jenness,
Thomas Samuel Jones, Jr.,
Mary Douglass Judd,
Katharine Berry Judson,
John Mills Keeler, Jr.,
Charles Earl Kelley,
Bertha Kline,
Charles George Koehler, Jr.,
Maude Louise Kuschke, B.E., M.E.,
Ida Marie Laird,
Ethel Laverty,
Julia Elsie Lawsing,
William Newton Lewis,
Edwin Fuller Lines,
Julia Eliza McClune,
Walter Edward McCourt,
Elsie McCreary,
Harry George McDonald,
Caroline Hamlin McFerran,
Caroline Elizabeth MacGill,
Peter Stephen McGuire,
Willard Charles McNitt,
Charles Maitland Mann,
Florence Anna Marquardt,
Arthur Harold Martin,
Lawrence Martin,
Louise Harriet Flanders Merritt,
Gladys Miller,
Frederic Alden Mills,
Frank Davis Mitchell,
Otto Allan Molatch,
Catharine Louise Monagle,
John Frederic Mowat,
Alfred Eugene Mudge,
William Andrew Murphy,
Elsie Murray,
George Jean Nathan,
Clarence Paul Oberndorf,
Jay Bernard Odell,
Grace O'Neill,
Frederick William Oswald, Jr.,
Alice Marie Ottley,
Mabel Ada Overbaugh,
Alice Evelyn Owsley,
Joviano Augusto d'Amaral Pacheco,
Marguerite Thiel Palmié,
Graham Creighton Patterson,

George Norman Pease,
 Grace Rappleye Pierson,
 George Howarth Potter,
 Lee Sheldon Pratt,
 Lillian Maude Purvis,
 Charles Lyman Rand,
 Lucy Carleton Reed,
 James J Reis,
 Frank Howard Richardson,
 Floyd Karker Richtmyer,
 John Clement Robertshaw,
 Ralph Kenyon Robertson,
 Frank Cowl Robinson,
 Frederick William Rope,
 Evangeline Darling Rose,
 Edward Kirke Ryder,
 Harold Elmore Santee,
 James Walter Schade,
 Maxwell Williams Scott,
 Grace Alvana Seely,
 John Francis Shanley, Jr.,
 Ralph Edward Sheldon.
 Jessie Gillies Sibley,
 Mary Cecilia Sieling, A.B.,
 Lilla Gertrude Simmons,
 Charles Albert Sleicher,
 Halbert Maitland Sloat,
 Edwin Mitchell Slocumbe,
 Helen Forsythe Smith,
 Jay Lewis Smith,
 Lucy Gilson Smith,
 Laura Katharine Smutz,
 Jessie Snow,
 Ralph Cuthbert Snowdon,
 William Clark Snyder,
 Mary Winifred Sprague,

Johnston Stanley,
 Edna Louise Steers,
 Delia May Stone,
 William Frederick Strang,
 Reeva Alice Sutton,
 Cecil Jarvis Swan,
 Clayton Isaac Swayze,
 Douglas Swift,
 Archie Raymond Taintor,
 Josiah Wilbur Tetley,
 Harland Bryant Tibbetts,
 Warren Tubbs,
 Mildred Jeanne Utley,
 Harry Fowler Vincent,
 Carrie Adele Warner,
 Fred Leon Warner,
 Louise Electa Watrous,
 Avice McIntosh Watt,
 Eric Hastings Webb,
 Matthias Hollenbeck Welles,
 David Torrey Wells,
 Edna Wensley,
 Jane Maria Wheeler,
 Perley Samuel Wheeler,
 Elizabeth Brett White,
 Harriet Whited,
 Charles Scoon Wilson,
 Russell Sage Woglum,
 Nancy Clafin Wood,
 Charles Stebbins Woodward, M.E.,
 Karl Wilson Woodward,
 Florence Worden,
 Albert Hazen Wright,
 Ola Mae Wyeth,
 William Walter Yothers, B.S.,
 Margaret Elizabeth Young.

Bachelors of Laws.

Erie Lochrane Austell,
 Francis William Bleakley,
 Ernest Breed,
 Seabury John Brooks,

Asahel J Buck,
 Daniel Martin Buckley,
 John Henry Callister,
 Francis Michael Cameron,

THIRTY-SIXTH ANNUAL COMMENCEMENT. 461

Ernest Mason Card, A.B.,
George Major Champlin,
Harry Vernon Clements,
Frederick Hatton Cowden, Jr.,
Harry Tryon Crist,
James Edwin Curran,
Edward Howard Davis,
Robert Ledger Dempster,
Charles Bernard Dowd,
Hervey John Drake,
James Timothy Driscoll,
Perry Denise Dunn,
Frank Edward Eberhardt,
George Walter Foren,
John Cowdrey Grier,
John Maryville Harwood,
Chalmer Raymond Heggen,
Louis John Hoenig,
George Haines Hooker, A.B.,
Francis George Hooley,

Fred Bemis Humphrey,
Clinton Watkins Johnson,
Howard Clarence Lake,
Isaac Levison,
Samuel Levy,
Fannie Dimmick Lyon,
George Arthur McGonegal, A.B.,
Agnes Keenan McNamara,
Charles Russell McSparren,
William Stearly Peace,
Arnold James Brown Potter,
Andrew Rutledge, Jr.,
Frank Leslie Scott,
Jaime C Seix-Rosaly,
Frank Smit,
William Loomis Stow,
John Leo Sullivan,
Edward Spaulding Van Dyck,
Edward Cassius Watson,
Floyd Harley Wilmot,

Walter Wadsworth Zittel.

Bachelors of the Science of Agriculture.

George Arthur Bell,
Walter Sheldon Brown, A.B.,
Howard Grenville Coville,
Fred Lester Crowe,
Philena Belle Fletcher,
William Franklin Fletcher,
Darnley Iredelle Hawkesworth,
Hiram Earl Kinne,

Albert Russell Mann,
Alfred Cookman Morgan,
Clarence Arthur Rogers,
Norwood Rarason Shields,
Maurits Carel Constantyn van Löben Sels,
Walter Ira Thomson.

Doctors of Veterinary Medicine.

Ward Losee Beebe,
Burt James Cady,
Clarence Finch Day,
Alberto Carmelo Fernandez, V.S.,
John Joseph Gallagher,
Charles E Gibbs,
Clarence Melvin Haring,
Valentine Mott Knapp,

Winfred Berdell Mack,
John Aloysius McNamara,
John Alden Madden,
Howard Jay Milks,
Vicente Ocampo, V.S.
Arthur M Seaman,
John Blakeslee Tiffany, B.S.A.,
Fred Dowling Walmsley.

462 THIRTY-SIXTH ANNUAL COMMENCEMENT.

Forest Engineers.

Harold Russel Bristol,
Frederick Dunlap,
Louis Margolin.

Gerard Bramley Lull,

Charles Albert Lyford,

Bachelors of Architecture.

Robert C Dunbar, A.B.,
Arthur Erskine Fettis,

Phillips Henry Mallory,

Ernest Valois Price.

Civil Engineers.

William Franklin Allison, B.S., B.S. Clifford Marshall King, A.B.,
in C.E., Hugo Kratzenstein, A.B.,
Nelson John Bell, Frank Harris Masters, A.B.,
William Law Bowman, Arthur Monje,
Frederick Tuttle Connor, Garfield Trenholm Morris, B.C.E.,
Gaylord Church Cummin, Daniel Barry Packard, A.B.,
Robert Elmer Curtiss, Winslow Shipman Pratt,
George Warren Dean, B.S., Charles Miller Reppert,
Robert Clark Ernest Dennett, Ross Milton Riegel,
Rafael Dominguez, William Laforge Savacool,
Guernsey William Ellis, Elwyn Eggleston Seelye,
Lawrence Rees Ellis, William Charles Seidell,
Newton Crocker Fassett, Arthur Keller Shumway,
Thomas Myron Foster, James Blaine Thomas,
Seymour Stanton Garrett, Charles Phillip Utz,
Haines Gridley, Charles Leopold Walker,
Harry Northrop Howe, Bernace Bensley Weber,
Julius Lilien Jacobs, B.S., Carl Robert Weidner,
John Kiddie, Frank Clinton Wight.

Mechanical Engineers.

Clarence Smith Adams, George Henry Bayne, Jr.,
Wickham Hurd Aldrich, Bergie Barrie Beckett, B.A.,
Francis Ramsey Allen, Alexander Norton Bentley,
William Gordon Allen, Orville Green Bennet, Jr.,
Nathaniel Reeve Andrews, Morphy Edison Berry,
Tom Jeffreys Ashe, Wilson Garfield Berryman,
Linnaeus Earl Baker, B.S. in M.E., Harold Spencer Bope,
Philippi Fazio Ballinger, John Francis Borden,
Francis Norwood Bard, Ernest Lafayette Bossinger,
Charles Ray Barney, Darnall Leggo Boyd,
Ira Steiner Barth, Alfred Alexander Brewster,
Eugene Croker Batchelar, Harry Sanford Brown, B.M.E.,

THIRTY-SIXTH ANNUAL COMMENCEMENT. 463

Alonzo Morris Buck, Jr.,
Irwin Buck,
Donald Pershing Carter,
Harry L. Chapman,
Samuel Barclay Charters,
John Augustus Cleveland, A.B.,
Harvey Morton Coale,
Charles Maro Cross,
Isaac Davenport,
Oliver Henry Davis,
Clarence Augustus Dawley,
Charles Harold Day,
Boyd Coe Dennison,
Alpheus Penn Denton,
Olin Fell Derr,
William Elmore Dickinson, A.B.,
John Orris Dodge,
Elmer Gould Eberhardt,
George Ernest Edgett,
Nixon Wiley Elmer,
Charles Wetmore Everson,
Robert Coyner Fenner, B.S.,
Morrison Fetzer, B.S.,
Walter Stevenson Finlay, Jr.,
Charles Franklin Fitter,
Horace Burdette Foote,
Merritt Liddle Fox,
William Louis Gass,
William Browne Gillies,
Julius Goetsch, A.B.,
Sidney James Goldwater, B.S.,
Charles Thomas Guildford, B.S.,
Walter David Gundelfinger,
Jesse Eugene Harris,
Kiyonori Hayashi,
Andrew Allgood Holmes, B.S.,
J. Clare Howard,
Sylvester Henry Hunt,
William Morris Imbrie, Jr.,
Andrew Langstaff Johnston, Jr.,
Arthur Lucas Jones,
Lloyd Balderston Jones,
Otis Allen Kenyon,
Leland Garfield Knapp,
Walter Hamlin Kniskern,
Archie Milton Larson,
Frederic Lask,
Clyde Higbee Loughridge,
Samuel Harvey McLeary,
Robert Joseph McNitt, A.B.,
Allen Mason,
Samuel Addison Meddaugh,
Lewis Edgar Meeker, Jr.,
Elbert Owen Moore,
Charles Edward Moulson, A.B.,
William Francis Moxley,
James Douglass Mudge,
James Frederick Muller, B.M.E.,
Roswell Flower Mundy,
Edward Munroe,
Harry Coville Nagel,
George Parsons, A.B.,
Allen John Peck,
Charles Frederick Perry, B.S.,
Arthur Morton Phillips,
Walter David Potosky,
William Herbert Price,
Rudolph Ernest Prussing,
Robert Rankin,
Walter Henry Rastall,
Roland Borman Renner, B.S.,
Charles Alphonso Roberts,
Mayo Eugene Roe,
Robert Wilson Rogers,
George Stanton Rose,
Gerald Savory, B.A.,
Nelson William Sawyer,
Daniel Ransom Scholes,
John B. Schrott, Jr.,
Charles Alfred Seely,
Roberto James Shalders, C.E.,
James Cicero Shaw,
Joseph Duty Shaw, B.S.,
William Francis Shaw, B.S.,

464 THIRTY-SIXTH ANNUAL COMMENCEMENT.

John Stephen Shedden, B.S.,	Manuel Carlos Velarde y Cobian,
Frederick Siefke,	Lawrence Motley Viles,
Barrett Smith,	Harold Blanchard Vincent,
Edward James Snow,	William Germain Vincent, Jr., B.E.,
Herbert Turner Snyder,	Edward Arthur Wadsworth,
Eben Childs Speiden,	George Wilfred Walker,
Clarence Garfield Spencer,	Irving Warner,
Duncan Goldsmith Stanbrough,	Louis Albert Webb,
William Foster Steel,	Frank West,
Albert Winfield Stone,	William Augustus Whittlesey, Jr.,
Julian Arthur Stratton,	Arthur Shaler Williams, A.B.,
J Parker Taylor,	James Henry Wilson,
William Henry Thomas,	Charles Wineburgh, B.S.,
Rolland Stinson Trott,	Charles Parkinson Wood,
George Burr Upton,	Henry Millard Wood,
Montgomery Sanford VanVleet,	David Shelley Woods.

ADVANCED DEGREES.

Masters of Arts.

Mabel Clare Almy, Ph.B. : L'Hôtel de Rambouillet and the Samedis Mlle. de Scudéry.

Hiram Douthitt Ayres, B.S. : Coefficients of Expansion at Low Temperatures.

Fannie Lazelle Coons, A.B. : The Religion of Virgil.

Rose May Cox, A.B. : A Psychological Interpretation of the Characters of Macbeth and Lady Macbeth.

Elsie Ross Engle, A.B. : The Subjunctive Substantive Clause, not including Indirect Questions, in the Eunuchus-Hecyra of Terence.

Gertrude Vernon Kahn, A.B. : The Principle of Love in Browning's Poetry.

Annie Allison Maxwell, A.B. : Non-classical Proper names in Spenser.

Lynn Boal Mitchell, B.A. : The Mood in Quod and Quia Clauses.

Susan Williams Moses, A.B. : Concerning the Authenticity of Cicero's Oration for Marcellus.

Lucy Agnes Rowell, B.A. : The Subjunctive Substantive Clause, not including Indirect Questions, in the Andria and Adelphoe of Terence.

Arthur Gordon Ruggles, B.S.A. : The Molting-fluid Glands of Insects.

Arthur Jerrold Tietje, A.B. : Ideals of the Good for the State in the Conceptions of Two Representative Commonwealths : Plato's "Republic," St. Augustine's "City of God."

THIRTY-SIXTH ANNUAL COMMENCEMENT. 465

Masters of Science in Agriculture.

- William Alonzo Stocking, B.Agr., B.S.A. : Bacteria in Milk.
George Frederick Warren, Jr., B.Sc., B.S.A. : A Soil Survey of the Cornell University Farms.

Master of Science in Architecture.

- Julius André Smith, B.Arch. : (No thesis required.)

Masters of Mechanical Engineering.

- John Boedeker, B.S. : Design of a Revenue Cutter of about 1600 tons Displacement.

- Edward Allen Duffy, A.B., M.E. : The Design of a 150,000 H.P. Power Station at Niagara with Special Reference to the Electrical Equipment and Transmission System.

- Emil Alfred Ekern, B.S. : High Tension Phenomena in Compressed Gases.

- Robert Lee Shipman, E.E., M.E. : Mechanical Refrigeration.

- Wilbur M Wilson, B.M.E. : Steam Power Station Design.

- John M Young, B.S. in M.E., M.E. : The Structural Details of a 150,000 H.P. Power Station at Niagara.

Doctors of Philosophy.

- Fred William Foxworthy, B.S., A.M. : On the Histological Structure of the Wood of the North American Coniferae.

- Charles Robert Gaston, Ph.B. : A Glossary of the Non-Wulfstan Homilies in the Collection edited by Napier.

- Clyde Ray Jeffords, A.B., A.M. : The Origin and Development of the Subordinating Function of the Particle Dum.

- Oskar Augustus Johannsen, B.S., A.M. : The Chironomidae.

- Thomas Lyttleton Lyon, B.S. in Agr. : A Method for Improving the Quality of Wheat for Bread Making.

- Murdock Stewart Macdonald, B.A., M.A. : Some Modern Theories of Judgment.

- Alexander Dyer MacGillivray, Ph.B. : The Embryological Development of *Corydalis cornutus*.

- Arthur Renwick Middleton, A.B. : The Determination of Acetylene.

- Clarence Lemuel Elisha Moore, B.Sc., A.M. : On the Quadratic Spherical Complex.

- Alfred Diehl Schoch, B.S. : The Differences in the Middle English Romaunt of the Rose and their Bearing on Chaucer's Authorship.

466 THIRTY-SIXTH ANNUAL COMMENCEMENT.

Walter Porter White, A.B., A.M. : Spark Damping and Hertzian Waves of Small Damping.

Henry Wilkes Wright, Ph.B. : The Laws of Evolution as Illustrated in Certain Phases of Experience.

John Wesley Young, Ph.B., A.M. : On the Group of Signs ($0, 3; 2, 4, \infty$) and the Functions Belonging to it.

CERTIFICATES AND PRIZES PRESENTED.

Certificates for Proficiency in Military Science :

James Lee Davis,	James J Reis,
William Franklin Fletcher,	Ralph Kenyon Robertson.

The Sibley Prizes in Mechanic Arts :

First Prize	Edgar Whitney Clarke
Second Prize	Elmer Gould Eberhardt
Third Prize	Samuel James Dennis
Fourth Prize	William Francis Shaw, B.S.
Fifth Prize	Clinton Arthur Carpenter

The H. K. White Prizes in Veterinary Science :

First Prize	Winfred Berdell Mack
Second Prize	Howard J Milks

The Woodford Prize in Oratory :

William Andrew Murphy

The Eighty-Six Memorial Prize in Declamation :

Charles Henry Tuck

The Ninety-Four Memorial Prize in Debate :

William Lynn Ransom

The Fuertes Medals :

Anson Marston, C.E.
Ross Milton Riegel.

The Sands Medals in Architecture :

Robert Irving Dodge, B.S. in Arch.
Julius André Smith, B. Arch.
Richard Andrews Tissington, B. Arch.

The Guilford Essay Prize :

George Holland Sabine, A.B.

The Hiram Corson Browning Prize :

John Quincy Adams, Jr., A.B., A.M.

THIRTY-SIXTH ANNUAL COMMENCEMENT. 467

Doctors of Medicine.

[Conferred June 8, 1904, at the Sixth Annual Commencement of the Medical College in New York City.]

Arthur William Albones,	George Francis Harris,
Harry Aranow,	Gerhard William Heuser,
Arthur Soper Armstrong, A.B.,	Abe Maurice Hilkowich,
Ralph Willis Atwater,	Henry Joachim,
Henry Clinton Becker,	Harold Booth Judd,
Samuel Joachim Bernfeld,	Raymond Francis Charles Kieb, A.B.,
Theodore Bliss, A.B.,	David Lazarus,
Ralph Earle Brodie,	David Wallace MacKenzie, B.A.,
Marguerite Jane Bullard, A.B.,	Cullen Bryant Maxson,
Hugh Holmes Carr,	Samuel Milbank,
Helen Louise Carter,	Carroll Leja Nichols,
Abraham Louis Caesar,	Sylvester Francis O'Day, A.B.,
George Wilbert Cottis,	Louis Allen Parmenter,
Gerry Brown Dudley, A.B.,	Ellery Newell Peck, A.B.,
Harry Eno,	John Alden Robinson,
Samuel Feldman,	William Walter Rose,
Perry Lawson Ferry,	Isidor Rosenthal, Ph.G.,
Sarah Elizabeth Finch,	Merton Jervis Sanford,
Emmett Grant Fish,	Pauline Scharfman,
Thomas Edmund Fitzgerald,	Joseph Slavit,
Herbert Clyde Gifford,	Charles Anthony Squires, A.B.,
Jacob Martin Goldberg,	Grant Stanley, B.S.,
Isidore Goldstein,	Sydney Steiner,
Joseph Roa Grant,	Pehr Stigner, A.B.,
Samuel Greenfield,	Charles Henry Webster,
William Grossman, A.B.,	Aaron Weller,
John Mead Hall,	Zella Mildred White,
	McLeod Campbell Wilson.

FELLOWS AND SCHOLARS.

UNIVERSITY FELLOWS.

The Cornell Fellowship,

English

The McGraw Fellowship,

Thomas Jacob Rodhouse, B.S. in C.E. (Univ. of Missouri),
M.C.E. (Cornell Univ.), *Civil Engineering*

The Sage Fellowship,

James Munsie Bell, B.A. (Univ. of Toronto), *Chemistry*

The Schuyler Fellowship,

Walter Edward McCourt, A.B., *Geology*

The Sibley Fellowship,

George Burr Upton, M.E. *Mechanical Engineering*

The Goldwin Smith Fellowship,

Cornelius Betten, M.A. (Lake Forest), *Entomology*

The President White Fellowship,

Samuel Richard Cook, M.S. (Univ. of Michigan), *Physics*

The Erastus Brooks Fellowship,

Clyde Furman Craig, A.B. (Univ. of Mich.), *Mathematics*

Ralph Elliott Abell, B.S. in Arch. (Univ. of Ill.), *Architecture*

Morphy Edison Berry, M.E., *Mechanical Engineering*

Arthur Gordon, A.B., *Romance Languages*

Frederick William Oswald, Jr., A.B., *Germanic Languages*

Winfred Berdell Mack, D.V.M., *Veterinary*

PRESIDENT WHITE FELLOWS IN HISTORY AND POLITICAL SCIENCE.

Theodore Frelinghuysen Collier, A.B., A.M. (Hamilton College).
George Pendleton Watkins, A.B.

FELLOWS IN POLITICAL ECONOMY.

Earl Winton Pettibone, A.B. (Oberlin).
Charles Clifford Huntington, Ph.B. (Ohio State Univ.).

FELLOWS IN LATIN AND GREEK.

Clarence Owen Harris, A.B.
George Reeves Throop, A.B., A.M. (DePauw Univ.).

FELLOW IN AMERICAN HISTORY.

Don E Smith, A.B.

SUSAN LINN SAGE FELLOWS IN PHILOSOPHY.

Joseph Herschel Coffin, B.S., A.M. (Penn Coll.).

Robert Benjamin Waugh, A.B. (Hobart Coll.).

Emil Carl Kunibert Wilm, A.B., A.M. (Southwestern Univ.).

FELLOW IN ARCHITECTURE.

Julius André Smith, M.S. in Arch.

HONORARY FELLOWS.

William Weber Coblenz, B.S. (Case School), A.M., Ph.D. (Cornell Univ.) *Physics*

James Allen Nelson, Ph.B. (Kenyon Coll.), Ph.D. (Univ. of Penn.). *Entomology*

GRADUATE SCHOLARS IN THE SCHOOL OF PHILOSOPHY.

Grace Mead Andrus, A.B.

Winifred Hyde, A.B. (Univ. of Nebr.).

Frank Davis Mitchell, A.B.

Elsie Murray, A.B.

George Holland Sabine, A.B.

Mary Winifred Sprague, A.B.

UNIVERSITY GRADUATE SCHOLARS.

Chauncey William Waggoner, B.S. in E.E. (Ohio Univ.) *Physics*

Albert Davis, A.B., A.M. (Columbia Univ.), *English*

Lynn Boal Mitchell, A.B. (Ohio State Univ.) *Greek and Latin*

Ella Maude Cipperly, A.B., *Botany*

Margaret Otis, A.B., *Comparative Philology and Archaeology*

Ralph Edward Sheldon, A.B., *Neurology and Vertebrate Zoology*

William Franklin Martin, B.S., C.E. (Univ. of Texas), *Civil Engineering*

Helen Isham, A.B., *Chemistry*

Elmer Clifford Colpitts, A.B. (Mount Allison), *, Mathematics*

Carla Fern Sargent, A.B. (Northwestern Univ.) *History*

Richard Morris, B.Sc., M.Sc. (Rutgers Coll.), *Mathematics*

UNIVERSITY UNDERGRADUATE SCHOLARSHIPS.

SOPHOMORE CLASS

THE CORNELL SCHOLARSHIPS,

George William Nasmyth, *Course in Arts*

Buffalo Central High School—Frederick W. Vogt, Principal.

Roswell Clifton Gibbs, *Course in Arts*

Buffalo State Normal School—James M. Cassedy, Ph.D., Principal.

THE H. B. LORD SCHOLARSHIPS,

Francis Harper, *Course in Arts*

Flushing High School—John Holley Clark, Principal.

Victor John Guenther, *Course in Mechanical Engineering*

Masten Park High School—F. S. Fosdick, M.A., Principal.

THE McGRAW SCHOLARSHIPS,

Thomas Willett Rolph, *Course in Mechanical Engineering*

Fredonia Normal School—F. B. Palmer, Ph.D., Principal.

Paul Halliday Underwood, *Course in Civil Engineering*

Ithaca High School—F. D. Boynton, D.Pd., Principal.

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Henry Walker Alexander, *Course in Civil Engineering*

University School, Montgomery, Ala.—J. M. Starke, Principal.

Ford Kurtz, *Course in Civil Engineering*

State Normal School, East Stroudsburg, Pa.—E. L. Kemp, A.M., Principal.

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William Gorton Taylor, *Course in Electrical Engineering*

Middletown High School—J. F. Tuthill, A.B., Principal.

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Ridgeway, Pa. High School—Prof. W. M. Pierce, Principal.

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Ithaca High School—F. D. Boynton, D.Pd., Principal.

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Benjamin Knowlton Boyce, *Course in Electrical Engineering*

Salamanca High School—Miss Edith Rutherford, Principal.

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Ithaca High School—F. D. Boynton, D.Pd., Principal.

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 Buffalo Central High School—Frederick A. Vogt, Principal.
 Mather Francis Thurston, *Course in Arts*
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 Romeyn Yatman Thatcher, *Course in Arts*
 Buffalo Central High School—Frederick A. Vogt, Principal.

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 Fayette Andrus Cook, *Course in Mechanical Engineering*
 Ithaca High School—F. D. Boynton, M.A., Principal.

THE SAGE SCHOLARSHIPS,

Freida Zorn, *Course in Arts*
 Girls' High School, Brooklyn,—Wm. L. Feiter, Ph.D., Principal.
 Alice Laura Clark, *Course in Arts*
 Northfield Seminary—Evelyn S. Hall, B.A., Principal.

THE SIBLEY SCHOLARSHIPS,

Donald Stewart, *Course in Electrical Engineering*
 Boys' High School, Brooklyn,—John Mickleborough, D.D., Principal.
 James Wallace Marshall, *Course in Mechanical Engineering*
 Pittsburg Academy—J. C. Armstrong, Principal.

THE PRESIDENT WHITE SCHOLARSHIPS,

George Paaswell, *Course in Civil Engineering*
 De Witt Clinton High School—J. T. Buchanan, Principal.
 Harry Ames Richards, *Course in Arts*
 Batavia High School—E. A. Ladd, Ph.D., Principal.

THE HORACE GREENLEY SCHOLARSHIPS,

Bruno Charles Lechler, *Course in Civil Engineering*
 Brooklyn Eastern District High School—W. T. Vlymen, Ph.D., Principal.
 Emma Florence Strang, *Course in Arts*
 Waterloo High School—Harry B. Smith, A.B., Principal.

THE JOHN STANTON GOULD SCHOLARSHIPS,

David Theodore Smith, *Course in Law*
Brooklyn Eastern District High School—W. T. Vlymen, Ph.D., Principal.
Claire L. Southworth, *Course in Arts*
Holley High School—H. D. Bartlett, Principal.

THE STEWART L. WOODFORD SCHOLARSHIPS,

George Frederick Rogalsky, *Course in Arts*
North Tonawanda High School—E. A. Smith, M.A. Principal.
Ross Peter Anderson, *Course in Arts*
South Butler High School—L. J. Cross, Principal.

ASSOCIATE ALUMNAE SCHOLAR.

Frances Elizabeth Evans, *Course in Arts*

FRANK WILLIAM PADGHAM SCHOLAR.

William Kalwirsky, *Course in Mechanical Engineering*

BOARDMAN SENIOR LAW PRIZE.

Walter McMeekan, *Course in Law*

CATALOGUE OF STUDENTS.

GRADUATES.

**In absentia.*

***Not in residence 1904-05.*

†*Not Candidates for Degrees.*

Abell, Ralph Elliott, B.S. in Arch. (Univ. of Ill.), 1904.	Elgin, Ill.
Architecture.	M.S. in Arch.
[Architectural Design, Life Class Drawing.]	
Adams, Joseph Quincy, Jr., A.B. (Wake Forest College), A.M. (same),	Charlotte, N. C.
English, Romance Languages.	Ph.D.
[English, French Literature, Italian Literature.]	
Akers, Oscar Perry, A.B. (Univ. of Colo.), 1898, M.A. (same), 1900,	Berthoud, Colo.
Mathematics, Mechanics.	Ph.D.
[Mathematics, Applied Mathematics, Mechanics.]	
Althaus, Edward, Jr.,	New York City.
Education, English.	A.M.
Andrus, Grace Mead, A.B., 1903,	Tacoma, Wash.
Philosophy, History and Political Science.	Ph.D.
[Logic and Metaphysics, Ethics, Political Economy.]	
Atkin, Ernest George, A.B., 1904,	Patchogue.
Romance Languages.	A.M.
[French, Spanish.]	
Austin, Blanche Tudor, B.S. (Wells), 1895,	Cincinnati, O.
Vertebrate Zoology, Entomology.	A.M.
†Avery, Harold Field, A.B., 1904,	Syracuse.
Latin, German.	
Barie, Charles Edward, A.B., 1904,	Erie, Pa.
Chemistry.	A.M.
[Inorganic and Organic Chemistry.]	
Barlow, John, A.M. (Brown Univ.), 1896,	Kingston, R. I.
Entomology.	A.M.
Bean, Arthur Malcolm, A.B. (Iowa College), 1897, A.M. (Cornell Univ.), 1903,	Pekin, Iowa.
Vertebrate Zoology, Neurology, Histology and Embryology.	Ph.D.
Bell, James Munsie, B.A. (Univ. of Toronto), 1902,	Toronto, Can.
Chemistry.	Ph.D.
[Physical Chemistry, Inorganic Chemistry, Mathematical Chemistry.]	

- Berry, Herman Claude, A.B. (Indiana Univ.), 1897, B.S. in C.E.
 (Purdue Univ.), 1902, *New Augusta, Ind.*
 Civil Engineering. *M.C.E.*
 [Hydraulics, Mechanics.]
- Berry, Morphy Edison, M.E., *Louisville, Ky.*
 Mechanical and Electrical Engineering. *M.M.E.*
 [Investigation of the properties of superheated steam, Electrical Engineering.]
- Betten, Cornelius, B.A. (Lake Forest Coll.), 1900, M.A. (same), 1901.
Orange City, Iowa *Ph.D.*
 Entomology, Botany.
 [Entomology (Systematic), Entomology (Ecology), Botany
 (Embryology).]
- Beyer, Albin Hermann, Jr., C.E. (Columbia Univ.), 1903, *Brooklyn*
 Civil Engineering. *M.C.E.*
 [Experimental Hydraulics, Masonry and Foundations].
- Blough, Earl, A.B. (Univ. of Indiana), 1899, *LaGrange, Ind.*
 Chemistry, Mineralogy. *A.M.*
 [Inorganic Chemistry, Mineralogy.]
- Boothroyd, Samuel Latimer, B.S. (Col. Agr. Coll.), 1893, M.S. (same),
 1904, *Ithaca* *M.C.E.*
 Civil Engineering, Mathematics. *M.C.E.*
 [Geodesy and Astronomy, Differential Equations.]
- Boyd, Paul Prentice, A.B. (Oberlin Coll.) 1898, A.M. (Park Coll.),
Siloam Springs, Ark. *A.M.*
 Mathematics.
 [Mathematics, Pure and Applied.]
- * Brill, George Mackensie, M.E., 1891, *Chicago, Ill.*
 Mechanical and Electrical Engineering. *M.M.E.*
- Brown, George Henry, B.L. (Dartmouth Coll.), 1894, *Lebanon, N.H.*
 Romance Languages. *A.M.*
 [French, Spanish.]
- Burnett, Samuel Howard, A.B. 1892, M.S. 1896, D.V.M. 1902,
Webster
 Veterinary Medicine, Bacteriology, Histology. *Ph.D.*
 [Pathology, Bacteriology, Histology.]
- Burnham, Stewart Henry, B.S. (Univ. of Mich.), 1899, *Sandy Hill*
 Botany. *A.M.*
 [Botany, (Mycology and Systematic).]
- Campbell, Thomas D, A.B., M.E. (Univ. of No. Dakota), 1904,
Grand Forks, N. D.
 Mechanical Engineering. *M.M.E.*
 [Electrical Engineering, Railway Mechanical Engineering.]

Carney, Frank, A.B. 1902,	Ithaca
Geology.	Ph.D.
[Physical Geography, Dynamic Geology, Historical Geology.]	
Carpender, Moncure Conway, M.E. (Stevens Inst. of Tech.), 1904,	New Brunswick, N.J.
Mechanical Engineering, Electrical Engineering.	M.M.E.
Carruth, William Massey, A.B., 1901,	Cleveland, O.
Mathematics.	A.M.
[Mathematics (Pure and Applied).]	
Cates, Junius Sidney, B.Agr. (N. C. Coll. of A. and M.), 1902, M.Agr. (same), 1904,	Swepsonville, N.C.
Agriculture.	Ph.D.
[Agronomy, Animal Industry, Agricultural Chemistry.]	
**Chamberlain, Ralph Vary, B.S. (Univ. of Utah), 1898,	Salt Lake City, Utah
Entomology, Vertebrate Embryology.	Ph.D.
[Arachnida, Vertebrate Embryology, Myriopoda.]	
Chase, Nellie Gertrude, B.L. (Smith Coll.), 1898, Newtonville, Mass.	
English, History.	A.M.
[English Composition, English History.]	
Cipperly, Ella Maude, A.B., 1904,	Troy
Botany.	A.M.
[Botany, (Taxonomy and Mycology).]	
†Coblentz, William Weber, B.S. (Case School), 1900, A.M. (Cornell Univ.), 1901, Ph.D. (same,) 1903,	Poland, O.
Honorary Fellow in Physics.	
Cochrane, Harry Hamilton, B. S. (Trinity Coll., Hartford, Conn.), 1901,	Ithaca
Electrical and Civil Engineering.	M.M.E.
[Electrical Engineering, Hydraulic Engineering.]	
Coffin, Joseph Herschel, B.S. (Penn Coll.), 1902, A.M. (same), 1904, Oskaloosa, Iowa	
Philosophy, Science and Art of Education.	Ph.D.
[Psychology, Education, History of Philosophy.]	
Coit, John Eliot, B.S. in Agr. (North Carolina A. & M. College), 1903,	Concord, N.C.
Horticulture. Botany.	M.S.in Agr.
[Horticulture, Botany (Systematic).]	
Colby, Irving Atwell, B.S. (N. H. Coll. of A. and M. A.), 1899, Mechanical Engineering.	Exeter, N.H.
[Machine Design, Experimental Engineering.]	M.M.E.

- Collier, Theodore Frelinghuysen, A.B. (Hamilton), 1894, A.M.
 (same), 1897, *Buffalo*
 History and Political Science. *Ph.D.*
 [Modern European, Mediaeval History, American History.]
- Colpitts, Elmer Clifford, A.B. (Mount Allison Univ.), 1902,
Point de Bute, New Brunswick, Canada
 Mathematics, Physics. *Ph.D.*
- [Pure Mathematics, Applied Mathematics, Physics.]
- Cook, Samuel Richard, B.S. (Univ. of Mich.), 1895, M.S. (same),
 A.M. (same), *Cleveland, O.*
 Physics. *Ph.D.*
- [Physics (Experimental, Theoretical, Mathematical).]
- Cox, Edward Godfrey, A.B. (Wabash Coll.), 1899, A.M. (Cornell
 Univ.), 1901. *Cleveland, O.*
 English, History and Political Science. *Ph.D.*
- [English Philology, Medieval History, The Development of the
 English Novel.]
- Craig, Clyde Firman, A.B. (Univ. of Mich.), *Des Moines, Iowa*
 Mathematics, Physics. *Ph.D.*
- [Mathematics (Pure and Applied), Physics.]
- Crampton, Guy Chester, A.B. (Princeton), 1904, *Mobile, Ala.*
 Entomology. *A.M.*
- [Systematic Entomology, Histology of Insects.]
- Curry, Bert Edwin, A.B. (Indiana Univ.), 1904, *Bloomington, Ind.*
 Chemistry. *A.M.*
- [Inorganic Chemistry, Electro-Chemistry.]
- Curtis, Ralph Wright, B.S.A. 1901, *Ithaca*
 Entomology, Botany. *M.S. in Agr.*
- [Entomology, Mycology.]
- Davis, Albert, A.B. (Columbia Univ.), 1903, A.M. (same), 1904,
Brooklyn
 English, Philosophy. *Ph.D.*
- [English Literature, English, Philosophy.]
- Day, Charles Harold, M.E. 1904, *Providence, R. I.*
 Mechanical, Electrical Engineering *M.M.E.*
- [Experimental Engineering, Electrical Engineering.]
- Delbridge, Thomas G., A.B. (Union Coll.), 1903, *Batavia*
 Chemistry. *Ph.D.*
- [Organic Chemistry, Physical Chemistry, Physiological Chemistry.]
- Dexter, Edith Delano, A.B. (Wellesley Coll.), 1895,
New Bedford, Mass.
 Latin, Greek. *A.M.*

- Dorsey, Herbert Grove, B.S. (Denison Univ.), 1897, M.S. (same),
1898, *Granville, O.*
Physics, Mathematics. *Ph.D.*
- [Experimental and Theoretical Physics, Mathematics.]
- Edminster, Frank Custer, A.B. 1902, *Brooklyn*
Mathematics. *A.M.*
- Pure and Applied Mathematics.
- Evans, Emily Abigail, A.B. (Woman's Coll. of Baltimore), 1904,
Reisterstown, Md.
- Comparative Anatomy, General Zoology (Invert. and Vert.) *A.M.*
- †Fenner, Robert Coyner, M.E., 1904, *Ithaca*
Physics. *Ph.D.*
- [Experimental and Theoretical Physics.]
- **Ferguson, Alexander McGarven, B.S.H. (Agr. and Mech. Coll. of
Texas), 1894, M.S., (same), 1896, *Austin, Texas*
Botany. *Ph.D.*
- [Botany (Physiology), Taxonomy of Angiosperms, Mycology.]
- Fippin, Elmer O., B.S. in Agr. (Ohio State Univ.), 1900,
Camp Chase, O.
Agriculture. *M.S. in Agr.*
- [Studies in Soil Structure, Study of Optimum Moisture
Requirements of different Plants.]
- Fisher, Willard James, A.B. (Amherst), 1892, *Woods Hole, Mass.*
Physics. *Ph.D.*
- [Experimental Physics, Theoretical Physics, Mathematical Physics.]
- Fletcher, Philena Belle, B.S.A., 1904, *Bainbridge*
Entomology, Botany. *Ph.D.*
- [Entomology (Bees of Cayuga Fauna), Botany (Mycology,
Plant Histology.)]
- *Fletcher, William Franklin, B.S.A., 1904, *Bainbridge*
Horticulture. *M.S. in Agr.*
- [Horticulture (Frost Injuries of Fruit Trees).]
- **Foord, James Alfred, B.S. (New Hampshire Coll.), 1898, M.S. in
Agr. (Cornell University), 1902, *Newark, Del.*
Agriculture, Veterinary Medicine. *Ph.D.*
- [Thremmatology, Dairy Husbandry, Agricultural Bacteriology.]
- Foster, Herbert Hamilton, Ph.B., 1900, *Canandaigua*
Science and Art of Education, Psychology, History and Political
Science. *A.M.*
- [Philosophy of Education, Psychology, Political Economy.]
- Fraser, Samuel (Cheshire Agr. and Hort. Coll., Eng.), 1898, *Ithaca*
Agriculture. *M.S. in Agr.*
- [A Study of Timothy (*Phleum pratense*), Draft of Tillage
 Implements.]

Freeman, Henry Livingston, B.S. in E. E. (Ga. School of Technology), 1900,	<i>Atlanta, Ga.</i>
Electrical Engineering, Mechanical Engineering. <i>M.M.E.</i>	
Gaby, Robert Edward, B.A. (<i>Toronto Univ.</i>) 1903, <i>Toronto, Can.</i>	
Physiology, Histology and Embryology, Pathology. <i>Ph.D.</i>	
[Physiology, Histology and Bacteriology.]	
Gaehr, Paul Frederick, A.B., 1902, Physics, Mathematics.	<i>Ithaca A.M.</i>
Gage, Otis Amsden, Ph.B. (Univ. of Rochester), 1899, Physics, Mathematics.	<i>Billona Ph.D.</i>
[Experimental and Theoretical Physics, Mathematics.]	
Gallup, Frederick Loren, A.B., 1904, <i>Norwich, Conn.</i>	
Geology, Chemistry.	<i>A.M.</i>
[Economic Geology, Chemistry.]	
Geer, William Chauncey, A.B., 1902, Chemistry, Physics.	<i>Ithaca Ph.D.</i>
[Inorganic Chemistry, Physics, Physical Chemistry.]	
Gilbert, Arthur Witter, B.S. (Mass. Agr. Coll.), 1904, Agriculture	<i>West Brookfield, Mass. M.S. in Agr.</i>
[Agronomy, Horticulture.]	
Gilmore, John Washington, B.S.A., 1898, Agriculture,	<i>Ithaca M.S. in Agr.</i>
[Quality of Potatoes, Varieties of Field Beans]	
Goldenweiser, Emanuel A, A.B. (Columbia Univ.) 1903, <i>Kier, Russia</i>	
Political Economy and Statistics, Political Economy and Finance,	
<i>A.M.</i>	
[Economics, Social Science.]	
Gordon, Arthur, A.B., 1904, Romance Languages,	<i>Caledonia A.M.</i>
[French, Spanish.]	
Halpin, Robert John, A.B., 1904, History and Political Science.	<i>Odessa A.M.</i>
[American History, Political Economy and Politics.]	
Harris, Clarence Owen A.B., 1898, Greek, Latin, Comparative Philology.	<i>Ithaca Ph.D.</i>
Hawley, Lee Fred, A.B., 1903, Chemistry, Geology.	<i>East Randolph A.M.</i>
[Inorganic Chemistry, Mineralogy.]	
Headlee, Thomas J., A.B. (Indiana Univ.), A.M. (same), 1903, Entomology.	<i>Yeoman, Ind. Ph.D.</i>
[Ecology of Insects, Ecology of Mussels of Winona Lake, Systematic Entomology.]	

- Helwig, Orestes Herbert, A.B. (Ohio Wesleyan), 1901, A.M. (same),
1901, *Gnadenhütten, O.*
Latin, Greek. *A.M.*
- Henderson, William Williams, A.B. (Brigham Young College),
Logan, Utah
Entomology. *A.M.*
- [Ecology of Insects, Systematic Entomology.]
Hirshfeld, Clarence Floyd, B.S. (Univ. of California), 1902,
San Francisco, Cal.
- Mechanical Engineering. *M.M.E.*
- [Reinforced Concrete, Finance of Engineering.]
- Hoadley, Laura Imogene, A.B. (Oberlin Coll.), 1899,
Branford, Conn.
Latin, Greek. *A.M.*
- Hollands, Edmund Howard, Ph.B., 1899, A.M., 1901, *Watervliet*
Philosophy. *Ph.D.*
- [Logic and Metaphysics, Ethics, Psychology.]
- *Hosford, George Wheeler, B.S.A., 1902, *Hampton, Va.*
Horticulture, Agronomy. *M.S. in Agr.*
- [A Study of the Strawberry, with special reference to Influence of
Fertilizers. A Study of Knot Grass.]
- **Hotchkiss, Willard Eugene, Ph.B., 1897, *Ithaca*
History and Political Science. *Ph.D.*
- [Politics, Political Economy, American History.]
- Howe, Charles Burton, M.E., 1903, *Ithaca*
Mechanical Engineering. *M.M.E.*
- [Mechanical Engineering, Machine Design.]
- Hu, Tung Chao, B.S. in C.E. (Tientsin Imperial Univ.), 1899,
Canton, China
Civil Engineering. *M.C.E.*
- [Bridge Engineering, Advanced Railroad Engineering, Advanced
Mechanics.]
- Hubbard, George David, B.S. (Univ. of Illinois), 1896, M.S. (same),
1898, A.M. (Harvard), 1901, *Ithaca*
Geology. *Ph.D.*
- [Physiography, Commercial Geography, Economic Geology.]
- Huntington, Charles Clifford, B.S. (Antioch Coll.), 1896, Ph.B. (Ohio
State Univ.), 1902, A.M., (same), 1903. *Yellow Springs, Ia.*
History and Political Science, Geology. *Ph.D.*
- [Political Economy and Finance, Physical Geography, American
History.]

Hyde, Winifred, A.B. (Univ. of Nebraska), 1900,	<i>Lincoln, Nebr.</i>
Philosophy.	<i>A.M.</i>
[Logic and Metaphysics, Ethics.]	
Iorns, Martin Joshua, B.C.E. in Sci. (Cornell Coll.), 1892,	<i>Ft. Worth, Texas</i>
Agriculture, Chemistry, Geology.	<i>Ph.D.</i>
[Horticulture, Agricultural Chemistry, Physiography.]	
Isham, Helen, A.B., 1903,	<i>Buffalo</i>
Chemistry, Physics.	<i>Ph.D.</i>
[Inorganic Chemistry, Organic Chemistry, Physics].	
Jacobs, Edward C, A.B. 1904,	<i>Ithaca</i>
History and Political Science.	<i>Ph.D.</i>
[American History, Constitutional History of England, Greek and Roman History.]	
Jennings, Fred Huntington, A.B. 1902,	<i>Moravia</i>
Chemistry, Geology	<i>Ph.D.</i>
[Inorganic Chemistry, Sanitary Chemistry, Economic Geology.]	
**Johnson, Thomas Carskadon, B.S. in Agr. (West Va. Univ.), 1896, A.M. (same), 1900,	<i>Morgantown, W. Va.</i>
Horticulture, Entomology.	<i>Ph.D.</i>
[Horticulture, Entomology, Landscape Gardening.]	
**Kauffman, Calvin Henry, A.B. (Harvard), 1896,	<i>Lebanon, Pa.</i>
Botany, Chemistry,	<i>Ph.D.</i>
[Botany (Plant Physiology, Mycology), Organic Chemistry]	
Kester, Frederick Edward, M.E. in E.E. (Ohio State Univ.), 1895, A.M., 1899,	<i>Eaton, Ohio</i>
Physics, Mathematics.	<i>Ph. D.</i>
[Experimental Physics, Theoretical Physics, Mathematics.]	
King, Walter Edward; B. A. (Wabash Coll.), 1900,	<i>Kinsman, O.</i>
Bacteriology, Pathological Histology.	<i>A.M.</i>
**Knowlton, Daniel Chauncey, A.B., 1898,	<i>Ithaca</i>
History and Political Science,	<i>Ph.D.</i>
[Modern European History, Medieval History, American History.]	
Krauskopf, Francis Craig, A.B. (Indiana Univ.), 1904,	<i>Maywood, Ill.</i>
Chemistry.	<i>A.M.</i>
[Inorganic and Sanitary Chemistry.]	
†Krecker, Frederick Hartzler, A.B. (Princeton), 1904,	<i>East Orange, N. J.</i>
Chemistry.	
[Inorganic Chemistry.]	

- *Kunze, Edward J., B.S. (Cooper Union), 1899, M.E. (Cornell University), 1901, *New York City*
 Mechanical Engineering. *M.M.E.*
 [Mechanical Engineering, Machine Design, Thermodynamics.]
- Lenk, Walter Schou, B.S. 1897, *Toledo, O.*
 Chemistry. *Ph.D.*
 [Chemistry of Foods, Inorganic Chemistry, Dairy Industry.]
- Lesley, Everett Parker, B.A. in M.E. (Leland Stanford), 1896, *San Francisco, Calif.*
 Naval Architecture, Marine Engineering. *M.M.E.*
- Lewis, Charles Edward, A.B. (Indiana Univ.), 1902, A.M., (same),
 1903, *Rensselaer, Ind.*
 Botany. *Ph.D.*
 [Embryology, Mycology, Taxonomy of Angiosperms.]
- **Long, William Henry, Jr., A.B. (Baylor Univ.), 1888, A.M. (Univ. of Texas) 1900, *Waco, Texas*
 Botany, *Ph.D.*
 [Botany (Mycology, Taxonomy of Angiosperms).]
- McCourt, Walter Edward, A.B., 1904, *Brooklyn*
 Geology. *A.M.*
 [Economic Geology, Mineralogy and Petrography.]
- McGill, Caroline Elizabeth, A.B., 1904, *Quebec, Can.*
 History and Political Science. *Ph.D.*
 [American History, Political Economy, Politics.]
- †Mack, Winfred Berdell, D.V.M., 1904, *Ithaca*
 Veterinary Science.
- McGuire, Peter Stephan, A.B., 1904, *Buffalo*
 History and Political Science. *Ph.D.*
 [American History, Modern European History, Political Economy and Politics.]
- MacRae, Donald A., A.B. (Dalhousie), 1898, *Ithaca*
 Greek, Latin, History and Political Science. *Ph.D.*
 [Greek, Latin, Ancient History.]
- Magnusson, John Peter, A.B. (Gustavus Adolphus Coll.), 1898, A.M.,
 (Univ. of Minn.), 1902, *St. Peter, Minn.*
 Chemistry, Physics. *Ph.D.*
 [Physical Chemistry, Inorganic Chemistry, Physics.]
- Martin, Columbus Ben, A.B. (Furman Univ.), 1899, *Greenville, S. C.*
 Latin, English. *A.M.*
- Martin, Harriett M., B.A. (Adelphi Coll.), 1902, *Brooklyn*
 Botany, Horticulture. *A.M.*
 [Plant Physiology and Ecology, Plant Breeding and Investigation (Horticultural.)]

Martin, Isabel Eleanor, A.B., 1903,	Auburn
Mathematics, Civil Engineering.	A.M.
[Mathematics, Astronomy.]	
Martin, Lawrence, A.B., 1904,	Adams, Mass.
Geology.	Ph.D.
[Physical Geography, Mineralogy and Petrography, Economic Geology.]	
Martin, William Franklin, B.S. (Univ. of Texas), 1903, C.E. (same), 1904,	Attoya, Texas
Civil Engineering, Mathematics, [Hydraulics, Pure Mathematics.]	M.C.E.
Merritt, Eugene, A.B., 1903,	Millbrook
Agriculture.	Ph.D.
[Rural Economy, Soils, Agronomy.]	
†Merrow, Harriet Lathrop, B.S. (Wellesley Coll.), 1886, A.M. (Univ. of Mich.).	Merrow, Conn.
Botany, Horticulture.	
†Milks, Howard Jay, D.V.M., 1904,	Candor
Veterinary Science.	
Mitchell, Frank Davis, A.B., 1904,	Ithaca
Philosophy,	Ph.D.
[Logic and Metaphysics, Ethics, Psychology.]	
Mitchell, Lynn Boal, B.A., (Ohio State Univ.), 1903, A.M. (Cornell Univ.), 1904,	Piqua, O.
Latin, Greek.	Ph.D.
[Ancient History.]	
†Molatch, Otto Allan, A.B., 1904,	Brooklyn
Chemistry.	
†Monagle, Catharine Louise, A.B., 1904,	Norwich
German, Botany.	
Moore, Alfred Austin, A.B. (Hamilton Coll.), 1890,	Clinton
Romance and Germanic Languages.	Ph.D.
[Romance Philology, Spanish, Middle High German.]	
Morey, Stephen Roy, B.S., 1900,	La Fayette
Inorganic Chemistry, Physics, Mineralogy,	Ph.D.
Morris, Richard, B.S. (Rutgers), 1899, M.S. (same), 1902,	New Brunswick, N.J.
Mathematics, Physics,	Ph.D.
[Pure Mathematics, applied Mathematics, Theoretical Physics.]	
Muhse, Albert Charles, A.B. (Indiana Univ.), 1901, A.M. (same), 1902,	Hebron, Ind.
History and Political Science, Philosophy,	Ph.D.
[Political Economy, Medieval History, Psychology.]	

Muhse, Effa Funk, A.B. (Indiana Univ.), 1903,	Ithaca
Histology and Embryology, Physiology, Sociology.	Ph.D.
Murray, Chester, Ph.B., 1899,	Tottenville
Romance Languages, Comparative Philology, Germanic Languages.	Ph.D.
[Romance Languages, Comparative Philology, German.]	
Murray, Elsie, A.B., 1904,	Athens, Pa.
Philosophy.	Ph.D.
[Psychology, History of Philosophy.]	
Myers, Curtis Clark, M.E., 1903,	Buffalo
Mechanical Engineering.	M.M.E.
[Mechanical Engineering, Street Railway Engineering, Machine Design.]	
†Nelson, James Allen, Ph.B. (Kenyon Coll.), 1898, Ph.D. (Univ. of Penn.), 1903,	Ithaca
Honorary Fellow in Entomology.	
Nicholson, Lloyd Carlton, A.B. (Trinity Coll., N. C.), 1899, A.M. (same), 1900, B.S. in E.E. (Univ. of Mo.), 1902,	Richlands, N. C.
Mechanical and Electrical Engineering.	M.M.E.
Northrop, Robert S, B.S. in Agr. (Mich. Agric. Coll.), 1901,	Ithaca
Agriculture.	M.S. in Agr.
[Horticulture, Out-Door Art.]	
Oswald, Frederick William, Jr., A.B., 1904,	Brooklyn
German, Education.	A.M.
Otis, Margaret, A.B., 1893,	Rochester
Greek, Latin, Archaeology.	Ph.D.
Pacheo, Joviano Augusto d'Amaral, A.B., 1904,	Jaboticabal, Brazil
Paleontology, Vertebrate Zoology.	A.M.
Partridge, Carroll Dunham, B.S. (Univ. of Vt.), 1900,	Burlington, Vt.
Chemistry.	Ph.D.
[Organic Chemistry, Physiological Chemistry, Physical Chemistry.]	
Pattison, Roy Stuart, M.E., 1903,	Mayville
Mechanical and Civil Engineering.	M.M.E.
[Electrical Engineering, Civil Engineering.]	
Pettibone, Earl Winton, A.M. (Oberlin Coll.),	Solon, O.
History and Political Science,	A.M.
[Political Economy and Politics, Political Economy and Finance.]	
Pierce, Clarence Albert, B.S. (Wesleyan Univ.), 1902, M.S. (same), 1904,	Roxbury, Conn.
Physics,	Ph.D.
[Experimental Physics, Theoretical Physics, Mathematical Physics.]	

Price, Ernest V., B.S. in Arch., 1904,	<i>Jamestown</i>
Civil Engineering.	<i>M.S. in Arch.</i>
[Bridge Engineering, Testing Materials.]	
Quiroga, Modesto, B.S. in Agr. (Ohio State Univ.), 1904,	
Agriculture.	<i>San Luis, Argentine Republic</i>
[Soils, Agronomy.]	<i>M.S. in Agr.</i>
Rand, Charles Lyman, A.B., 1904,	<i>Ithaca</i>
Chemistry, Physics.	<i>A.M.</i>
[Inorganic Chemistry, Physics.]	
**Ray, Perley Orman, A.B. (Univ. of Vermont), 1898, A.M. (same),	
1902,	<i>Burlington, Vt.</i>
History and Political Science,	<i>Ph.D.</i>
[American History, English Constitutional History, Medieval	
History.]	
Read, Effie Alberta, A.B., 1903,	<i>Haverhill, Mass.</i>
Histology and Embryology, Entomology.	<i>A.M.</i>
Reinecke, Leopold, A.B. (Univ. of the Cape of Good Hope), 1902,	
Geology.	<i>Languedoc, Cape Colony</i>
[Stratigraphic Geology, Paleontology, Mineralogy.]	<i>Ph.D.</i>
Renner, Roland Borman, B.S. (Purdue Univ.), 1902, M.E. (Cornell),	
1904,	<i>Nashville, Tenn.</i>
Mechanical Engineering.	<i>M.M.E.</i>
[Experimental Engineering, Machine Design.]	
Rice, George Whitmore, M.E. 1903,	<i>Ithaca</i>
Mechanical Engineering.	<i>M.M.E.</i>
[Mechanical and Experimental Engineering.]	
†Richter, Martin Luther, Jr., B.S. in C.E. (Univ. of Ga), 1904,	
Electrical Engineering, Mathematics.	<i>Madison, Ga.</i>
Rodhouse, Thomas Jacob, B.S. in C.E. (Univ. of Mo.), 1897,	
Civil Engineering.	<i>Columbia, Mo.</i>
[Experimental Hydraulics, Bridges, Mechanics.]	<i>Ph.D.</i>
Rogers, Clarence Arthur, B.S.A. 1904,	<i>Bergen</i>
Agriculture.	<i>M.S. in Agr.</i>
[Horticulture, Poultry.]	
Sabine, George Holland, A.B., 1903,	<i>Dayton, Ohio</i>
Philosophy.	<i>Ph.D.</i>
[Logic and Metaphysics, Psychology, Ethics.]	

- †Sargent, Carla Fern, A.B. (Northwestern Univ.), 1895,
Evanston, Ill.
 History.
- Sawdon, Will M., B.S. in M.E. (Purdue Univ.), 1898, *Aurora, Ind.*
 Mechanical Engineering. *M.M.E.*
- [Mechanical Engineering of Power Plants, Steam Engines and other
 Prime Moters.]
- Schade, James Walter, A.B., 1904, *Brooklyn*
 Chemistry, Physics. *A.M.*
 [Inorganic Chemistry, Physics.]
- Schmitz, Nicholas, B.S. in Agr. (Kansas State Agr. Coll.), 1904,
Sterling, Kansas
 Agriculture. *M.S. in Agr.*
 [Soils, Agronomy]
- Scott, Wilfred W., A.B. (Ohio Wesleyan Univ.), 1897, A.M. (same),
 1902, *Bareilly, U.P. India*
 Chemistry, Physics. *Ph.D.*
 [Inorganic Chemistry, Agricultural Chemistry, Physics.]
- **Seaton, Sara, A.B. (Wellesley Coll.), 1896, *Cleveland, Ohio*
 Botany. *A.M.*
 [Botany (Morphology and Embryology, Mycology.)]
- Sheldon, Ralph Edward, A.B., 1904, *Ithaca*
 Neurology and Comparative Anatomy. *A.M.*
- Shields, Norwood Rarason, B.S. in Agr., 1904, *Camden, N.J.*
 Agriculture. *M.S. in Agr.*
 [Economic Production of Sanitary Milk, Animal Husbandry.]
- Smith, Arthur, A.B. (Univ. of Toronto), 1900, *Iroquois, Ont., Canada*
 Entomology. *A.M.*
- Smith, Don E., A.B., 1901, *Buffalo*
 History and Political Economy. *Ph.D.*
 [American History, Modern European History, Political Economy.]
- Smith, George Gates, Jr., C.E., 1898, M.C.E., 1899, *Flint*
 Civil Engineering. *Ph.D.*
 [Mechanics, Bridge Engineering, Railroad Engineering.]
- †Smith, Julius André, B.S. in Arch., 1902, M.S. in Arch., 1903,
New York City
 Architecture.
- **Smith, Lillian Scoresby, A.B. (Syracuse Univ.), 1891, *Auburn*
 Latin, Greek, Comparative Philology. *Ph.D.*
- **Smith, Mary Helen, S.B. (Oberlin Coll.), 1887, M.A. (same), 1894,
Farmington, Conn.
 Botany. *A.M.*
 [Botany (Morphology and Embryology).]

- Snowdon, Ralph Cuthbert, A.B., 1904,
Chemistry. *Scranton, Pa.* *A.M.*
[Electro Chemistry, Inorganic Chemistry.]
- **Spinney, Louis Bevier, B.M.E. (Iowa Agr. Coll.), 1892, B.S. (same),
1893, Physics, Mathematics. *Ames, Iowa* *Ph.D.*
[Experimental Physics, Theoretical Physics, Mathematics.]
- Sprague, Mary Winifred, A.B., 1904,
Philosophy, History and Political Science. *New Berlin* *Ph.D.*
[Logic and Metaphysics, Ethics, European History.]
- Stevens, Herman Campbell, A.B. (Univ. of Mich.), 1901, *Elyria, O.*
Philosophy, Physiology. *Ph.D.*
[Psychology, Physiology, History of Philosophy.]
- Stevenson, Reston, A.B. (U. of N. C.), 1902, A.M. (same), 1903,
Wilmington, N. C. Chemistry, Physics. *Ph.D.*
[Inorganic Chemistry, Physical Chemistry, Experimental Physics.]
- **Stewart, Fred Carlton, B.S. (Iowa Agr. Coll.), 1892, M.S. (same)
1894, Botany, *Geneva* *Ph.D.*
[Mycology, Physiology, Histology.]
- Sturgis, Cony, A.B. (Bowdoin Coll.), 1899,
Romance Languages. *Ithaca* *A.M.*
- Thornber, Walter Strickland, B.S. in Agr. (S. D. Agr. Coll.), 1897,
M.S. in Agr. (same), 1899, *Brookings, S. D.*
Agriculture, Botany. *M.S. in Agr.*
[Horticulture, Botany (Histology).]
- Thorpe, Walter Franklyn, B.A. (Conn. Agr. Coll.), 1901,
Agriculture. *North Haven, Conn.* *M.S. in Agr.*
[Horticulture, Agronomy.]
- Throop, George Reeves, A.B. (DePauw Univ.), 1901, A.M. (same),
1903, Latin, Greek, Comparative Philology. *Bolton, Miss.* *Ph.D.*
- Upton, George Burr, M.E., 1904,
Chemistry, Mechanical Engineering. *Ithaca* *M.M.E.*
[Investigation of the Engineering Strengths of some Copper Alloys.
Investigation, Efficiency and Operation of Gas Engines.]
- **Van Hook, James M, A.B. (Indiana Univ.), 1899, A.M. (same),
1900, Botany. *Borden, Ind.* *Ph.D.*
[Botany (Mycology, Comparative Morphology, and Embryology,
Physiology).]

Waggoner, Chauncey William, B.S. in E.E. (Ohio Univ.), 1904,	Sugar Grove, O.
Physics.	A.M.
[Experimental Physics, Theory of Heat and Thermo-Dynamics.]	
Walbridge, Mabel H., A.B. (McGill Univ.), 1897,	Montreal, Can.
Physics, Mathematics.	A.M.
Warren, George Frederick, Jr., B.Sc. (Univ. of Neb.), 1897, B.S.A.	
(Cornell Univ.), 1903, M.S. in Agr. (same), 1904, Harvard, Neb.	
Agriculture.	Ph.D.
[Horticulture, Agricultural Soils, Agronomy.]	
**Watkins, George Pendleton, A.B., 1899,	King Ferry
History and Political Science.	Ph.D.
[Political Economy, Statistics, Politics.]	
Waugh, Robert Benjamin, A.B. (Hobart College), 1902,	Phelps
Philosophy.	Ph.D.
[Metaphysics and Logic, Ethics, Greek Philosophy.]	
Weld, Lewis Hart, A.B. (Univ. of Rochester), 1900, A.M. (Univ. of	
Mich.), 1902,	Medina
Agriculture, Entomology,	Ph.D.
[Horticulture, Entomology, Agronomy.]	
Wheeler, John, M.E., 1903,	Ithaca
Mechanical Engineering, Civil Engineering, Geology	
and Mineralogy.	M.M.E.
White, Gershon Franklin, B.S., (Ohio Univ.), 1901,	Malta, O.
Bacteriology, Histology and Embryology, Pathological Histology.	
	Ph.D.
Willard, Ralph Claude, A.B. (Hobart Coll.), 1904,	Watertown
History, Latin.	A.M.
[Ancient History, Latin.]	
**Williams, Florence Louise, A.B., 1898,	LeRoy
German, Science and Art of Education.	A.M.
Wilm, Emil Carl Kunibert, A.B. (Southwestern Univ.), 1901, A.M.	
(same), 1902,	Georgetown, Texas
Philosophy, German.	Ph.D.
[Ethics, Logic and Metaphysics, German Literature.]	
Wilson, Charles Scoon, A.B., 1904,	Hall's Corners
Agriculture.	M.S. in Agr.
[Horticulture, Agronomy.]	
Winter, Samuel Guy, A.B. (Ohio Univ.), 1902, A.M. (same), 1903,	
Crooksville, O.	
Embryology, Bacteriology, Physiology.	Ph.D.

Woglum, Russell Sage, A.B., 1904,	<i>Oncida</i>
Entomology, Botany, [Economic Entomology, Botany (Mycology.)]	<i>M.S. in Agr.</i>
Wright, Albert Hazen, A.B., 1904,	<i>Hilton</i>
Vertebrate Zoology, Entomology.	<i>A.M.</i>
Young, Ralph G., M.E., 1901, Mechanical Engineering. [Reinforced Concrete, Finance of Engineering.]	<i>Ithaca</i> <i>M.M.E.</i>

Graduate Students in Undergraduate Courses.

Abrahams, Morris Landa, B.S. in M.E. (A. and M. Coll. of Texas), 1903,	<i>M.E.</i>
Ackart, Everett Gunner, Ph.B. (Wesleyan Univ.), 1902,	<i>E.E.</i>
Adams, Thomas Dickinson, A.B., 1903,	<i>M.E.</i>
Adye, Elton Merville, Ph.B. (Brown Univ.), 1902,	<i>M.E.</i>
Aitken, John Winfield, Jr., C.E. (Penn. Mil. Coll.), 1904,	<i>M.E.</i>
Aleman, Fernando, B.A. (National Coll.), 1898,	<i>B.S.A.</i>
Ames, Harry Lee, A.B. (Randolph-Macon), 1901,	<i>E.E.</i>
Aronovici, Charles, B.L. (Gym. of Roumania), 1898,	<i>B.S.A.</i>
Baird, Alvin Walter, A.B. (Stanford Univ.), 1901,	<i>M.D.</i>
Baker, Norman Lockyer, A.B. (Rollins Coll.), 1900,	<i>E.E.</i>
Balcke, Walter Henry, A.B. (Illinois Coll.), 1904,	<i>M.E.</i>
Baltaas, Apolinario, B.S. (Manila), 1903,	<i>C.E.</i>
Barker, Orrin, A.B. (Univ. of Rochester), 1904,	<i>LL.B.</i>
Battle, Thomas Robert, Jr., B.S. in C.E. (A. and M. Coll. of Texas), 1902,	<i>C.E.</i>
Baum, John Albert, B.S. in C.E. (A. and M. Coll. of Texas), 1903,	<i>C.E.</i>
Bautista, Mariano, B.A. (Manila), 1902,	<i>Sp. B.S.A.</i>
Beckary, Albert, Ph.G. (N. Y. Coll. of Phar.), 1898,	<i>M.D.</i>
Bedford, Alletta Langdon, A.B., 1903,	<i>M.D.</i>
Bein, Felix Washington, B.S. (City Coll. of N. Y.), 1902,	<i>M.E.</i>
Bennett, Alice, M.D. (Woman Med. Coll. of Pa.), 1876, Ph.D. (Univ. of Pa.), 1880,	<i>Sp. M.D.</i>
Berry, Romeyn, A.B., 1904,	<i>LL.B.</i>
Bliss, George Ripley, B.A. (Bucknell Univ.), 1903,	<i>M.E.</i>
Boorstein, Joseph Aaron, A.B. (City Coll. of N. Y.), 1902,	<i>C.E.</i>
Bostroem, August, Jr., B.S. (Coll. of City of N. Y.), 1903,	<i>M.E.</i>
Boxmeyer, Charles Herbert, A.B. (Stanford Univ.), 1896,	<i>M.D.</i>
Bradley, James Chester, A.B. (Phila. Cent. H. S.), 1903,	<i>A.B.</i>
Brewrink, John Edward, Ph.B. (North Western Univ.), 1902,	<i>M.E.</i>

Brinley, Henry De Nyse, A.B., 1904,	<i>LL.B.</i>
Brooks, Nathaniel Preston, A.B. (Univ. of Vermont), 1903,	<i>M.D.</i>
Bryan, Lemuel Berry, B.C.E. (Univ. of Ark.), 1903,	<i>C.E.</i>
Bunker, Charles Orville Waite, B.Sc. (Univ. of Nebr.), 1901,	<i>M.D.</i>
Burgoon, Charles Eli, B.M.E. (A. and M. Coll. of Texas), 1895, M.E. (same), 1899,	<i>M.E.</i>
Burnham, Enoch Lewis, A.B. (Harvard), 1904,	<i>C.E.</i>
Burns, Herbert Alexander, B.S. (Univ. of Calif.), 1903,	<i>S^p. M.E.</i>
Busbee, Christiana, A.B. (Univ. of N. C.), 1902,	<i>A.B.</i>
Cahill, Francis Joseph, A.B., 1903,	<i>M.D.</i>
Caldwell, Isabella, A.B., 1904,	<i>M.D.</i>
Canaga, Gordon Byron, A.B. (Scio Coll.), 1902,	<i>C.E.</i>
Carlin, Harry Vincent Aloysius, A.B. (Georgetown), 1904,	<i>C.E.</i>
Chace, Archibald Eastwood, A.B., 1904,	<i>M.D.</i>
Chamberlain, Frank Wilbert, B.S. (Univ. Vermont), 1904,	<i>D.V.M.</i>
Chase, Arthur Reynolds, A.B. (Iowa Coll.), 1895,	<i>C.E.</i>
Child, Frank Samuel, Jr., Ph.B. (Hamilton Coll.), 1903,	<i>M.D.</i>
Choate, Richard Pearse, M.E. (Md. Agr. Coll.), 1904,	<i>M.E.</i>
Clapp, John Henry, B.S. (Princeton Univ.), 1902,	<i>LL.B.</i>
Clark, Charles Frederick, B.S. (Univ. of Vermont), 1897, S ^p . B.S.A.	
Clark, Ellen Stout, B.P. (West Chester Normal), 1903,	<i>A.B.</i>
Clark, Zella Marie, B.A. (Acadia Coll.), 1899,	<i>M.D.</i>
Cleveland, Harry Whitehall, C. E. (Penn. Mil. Coll.), 1904,	<i>M.E.</i>
Close, John Campbell, B.Sc. (Univ. of Sydney), 1903,	<i>M.E.</i>
Cocke, Charles Hartwell, B.A. (Univ. of Va.), 1902,	<i>M.D.</i>
Cohen, Rose, M.E. (Bloomsburg State Nor.), 1885, B.E. (same), 1887,	<i>M.D.</i>
Coops, Frank Harvey, M.D. (P. and S. of Baltimore), 1896, S ^p . M.D.	
Cowan, Lewis Andy, B.C.E. (Mont. Agr. Coll.), 1904,	<i>C.E.</i>
Coward, Osmun Latrobe, B.S. (Coll. of Charleston), 1904,	<i>M.E.</i>
Crawford, Mary Merritt, A.B., 1904,	<i>M.D.</i>
Crawford, Thomas Frew, B.S. (Phil. Cent. H. S.), 1899,	<i>M.E.</i>
Cross, Ralph Adam, A.B., 1904,	<i>LL.B.</i>
Cuddeback, Edgar Gordon, A.B., 1904,	<i>M.D.</i>
Cutler, Charles Evlynn, A.B., 1904,	<i>B.Arch.</i>
Davis, Charles Roy, A.B. (Onachita Coll.), 1903,	<i>M.D.</i>
Davis, Roy Bingham, A.B., 1904,	<i>LL.B.</i>
Day, Rodney Dean, B.A. (Yale Univ.), 1903,	<i>M.E.</i>
Dennis, Nina A, A.B., 1904,	<i>M.D.</i>
Dewey, George Steele, B.S. (Va. Mil. Inst.), 1903,	<i>M.E.</i>
Dewey, Thomas Augustus, B.S. (Va. Mil. Inst.), 1903,	<i>M.E.</i>
Dimock, William Wallace, B.Agr. (Conn. Agr. Coll.), 1901, D.V.M.	

Dodge, Lawrence Green, A.B. (Harvard Univ.), 1904,	B.S.A.
Dodson, Martha Ethel, B.E. (Bloomsburg State Normal), 1903,	A.B.
Donahue, William James Aloysius, A.B. (St. Peters' Coll.), 1904,	M.D.
Dragoshinoff, Dragoshin George, A.B. (Robert Coll.), 1904,	B.S.A.
Drake, Bertrand Francis, B.S. (Princeton Univ.), 1898,	M.D.
Drake, William Allen, B.S. (Purdue Univ.), 1899,	M.E.
Durham, Glen Giffen, B.Sc. (Bucknell Univ.), 1900, M.S. (same), 1902,	E.E.
Elias, Hope, Jr., A.B. (Trinity Coll.), 1904,	Sp. B.S.A.
Elliott, John Earle, A.B. (William and Mary Coll.), 1899,	C.E.
Engelmann, Rosa, B.S. (Milwaukee Coll.), 1882, M.D. (Woman's Med. of Chicago), 1889,	M.D.
Estill, George Castleman, A.B. (Ky. Univ.), 1902,	M.E.
Evans, George Maynard, B.S. (Coll. of City of N. Y.), 1904,	M.E.
Fahr, George Edmeaston, S.B. (Univ. of Chicago), 1904,	A.B.
Fairbank, Harvey Clark, A.B., 1903,	M.E.
Fairlamb, Gertrude May, M.E. (Westchester Nor.), 1898,	Sp. A.B.
Farror, James William, B.E. (A. and M. of N. C.), 1904,	M.E.
Faxon, Theodore Edmund, A.B., 1903,	LL.B.
Fendrich, William, Jr., B.S. (Coll. of City of N. Y.), 1904,	M.E.
Fenno, George Francis, B.S. (Coll. of City of N. Y.), 1903,	M.E.
Fernow, Bernard Edward, Jr., A.B., 1904,	M.E.
Fisher, Mary Jones, A.B. (Western Maryland Coll.), 1890,	A.B.
Fleck, Anthony George, A.B. (St. Francis Xavier), 1902,	E.E.
Fleming, Burton Percival, B.S. (Utah Agr. Coll.), 1900,	M.E.
Fleming, Thomas, Jr., B.S. (Columbian Univ.), 1903,	C.E.
Fountain, Thomas Lilly, B.S. in C.E. (A. and M. Coll. of Texas), 1901,	C.E.
Freeman, William Bradley, B.C.E. (Mont. Agr. Coll.), 1903,	C.E.
Frey, Harry Charles, A.B., 1904,	LL.B.
Frost, Harry Barber, B.S. (Univ. of N. C.), 1904,	M.E.
Gaede, Henry James, LL.B. (N. Y. Univ.), 1904,	Sp. LL.B.
Galadjikian, Alexander Sarkis, A.B. (Robert Coll.), 1904,	E.E.
Gannon, John Francis, A.B. (Manhattan Coll.), 1899,	M.D.
Gaston, Edwards Pablo, A.B. (Univ. of Havana), 1900,	E.E.
Gehr, Ray Stewart, Ph.B. (Adelbert Coll.), 1899,	M.E.
Geiser, George Merrill, A.B. (Yale Coll.), 1904,	M.D.
Genung, Lewell T., A.B., 1897,	M.D.
George, Emma Louise, Ped.B. (Albany Normal Coll.), 1897,	Sp. A.B.
Gilchrist, Jessie Lewis, M.P. (Bloomsburg Normal), 1898,	A.B.
Ginorio, Francisco Ricardo, A.B. (Inst. de Puerto Rico), 1899,	E.E.
Goehle, Otto Louis, A.B., 1902,	M.D.

Goldenweiser, Emanuel, A.B. (Columbia Univ.), 1903,	LL.B.
Gordon, George Huntly, B.Sc. (Dalhousie), 1903,	M.E.
Gordon, Thomas Croxton, B.S. (Va. Mil. Inst.), 1904,	M.E.
Gregson, Edward Jene, B.A. (Univ. of Sydney), 1903,	M.E.
Hagopian, Dicran Sttepan, A.B. (Robert College), 1904,	M.D.
Haines, Charles Alvin, A.B. (Muhlenberg Coll.), 1904,	M.E.
Hamblet, Mary Lucia, A.B. (Wellesley Coll.), 1898,	M.D.
Harris, Charles William, B.S. (Univ. of Wash.), 1903,	C.E.
Hart, Harold Leslie, A.B., 1903,	LL.B.
Heggem, Chalmer Raymond, LL.B., 1904,	A.B.
Herrick, John Rutherford, A.B. (Amherst Coll.), 1901,	M.D.
Hiller, Francis Hemperley, A.B., 1903,	LL.B.
Hocson, Felix, B.A. (Manila), 1902,	Sp.B.S.A
Hoobler, Bert Raymond, B.S. (Wabash Coll.), 1901,	M.D.
Hume, Fred, B.A. (Vanderbilt Univ.), 1902,	M.E.
Hutson, Arthur Cary, B.S. (A. and M. Coll. of Texas), 1900,	C.E.
Hutton, Robert Leroy, A.B. 1903,	M.D.
Irvine, Pierpont Edward, A.B. (Kenyon Coll.), 1904,	M.E.
Johnson, Howard White, B.S. (Northwestern Univ.), 1904,	M.E.
Joshi, Lemuel Lucas, B.Sc. (Univ. of Bombay), 1902,	M.D.
Kearns, Thomas Joseph, B.A. (Manhattan Coll.), 1902,	M.D.
Kelley, Charles Earl, A.B., 1904,	LL.B.
Kent, Ralph Sherlock, A.B., 1902,	LL.B.
Kercheval, Robert Forsyth, B.A. (Gonzaga Coll.), 1900,	M.E.
Kernan, Nicholas Edward, A.B. (Georgetown), 1903,	LL.B.
Koehler, Charles George, Jr., A.B., 1904,	M.D.
Krass, Ralph William, B.S. (Coll. of City of N. Y.), 1903,	M.E.
Laird, Ida Marie, A.B., 1904,	M.D.
Laurie-Walker, George Livingstone, A.B. (Derby Univ), 1901,	Sp.M.E.
Leak, Clarence Elmer, B.S. (Guilford Coll.), 1902,	Sp.M.E.
Lee, William Ross, A.B. (Hamilton Coll.), 1900, A.M. (same), 1901,	LL.B.
Lewis, Ora Mabelle, A.B. (Smith Coll.), 1900,	M.D.
Loeber, Edith, A.B., 1903,	M.D.
Louis, Henry Charles Ernest, A.B. (John Hopkins Univ.), 1904,	M.E.
Luke, Harry Clifford, Ph.G, (Univ. of Buffalo), 1897,	M.D.
Lyon, Charles Albert, A.B. (Princeton Univ.), 1901,	E.E.
McDonald, Alan, B.A. (Univ. of Louisville), 1901,	M.E.
McGlone, John, A.B. (Johns Hopkins Univ.), 1904,	M.E.
McIntosh, Robert, Ph.B. (Iowa Coll.), 1901,	M.E.
McIver, George Walter, B.S. (Clemson Coll.), 1904,	M.E.

McMurtrie, William Anderson, Ph.B. (Lafayette Coll.), 1901,	<i>M.D.</i>
Mann, Charles Maitland, A.B., 1904,	<i>M.D.</i>
Mannoccir, James Earle, B.A. (Spring Hill Coll.), 1904,	<i>M.E.</i>
Mansfield, Edward Raymond, B.S. (Univ. of Maine), 1899,	<i>M.D.</i>
Martin, Arthur Harold, A.B., 1904,	<i>M.D.</i>
Martinez, Carlos Alfonso, B.S. (St. Louis Coll.), 1901,	<i>E.E.</i>
Matthews, Hubert Willard, B.S. (Clemson Coll.), 1904,	<i>M.E.</i>
Miller, Frederick Robert, B.A. (Toronto Univ.), 1903,	<i>M.D.</i>
Mitchell, Walter R., M.E. (Md. Agr. Coll.), 1904,	<i>M.E.</i>
Moorman, Silas Mercer, A.B. (Georgetown Coll., Ky.), 1898,	<i>M.D.</i>
Morgan, William Conant, B.S. (Amherst Coll.), 1903,	<i>M.E.</i>
Mortimer, Charles Ward, B.S. (Univ. of Miss.), 1902,	<i>M.E.</i>
Mount, Louis Burgh, A.B., 1902,	<i>M.D.</i>
Mowat, John Frederic, A.B., 1904,	<i>M.E.</i>
Neef, Frederick Emil, M.D. (P. and S. of N. Y.), 1904,	<i>Sp. M.D.</i>
Neely, John Thompson, B.S. (V. P. I.), 1903, M.E. (same), 1904,	<i>Sp. C.E.</i>
Neff, William, A.B., 1903,	<i>LL.B.</i>
Ninomiya, Tenu, (Tokyo Poly. Inst.), 1901,	<i>M.E.</i>
Obendorf, Clarence Paul, A.B., 1904,	<i>M.D.</i>
Oliver, Clifford Rylander, A.B. (Univ. of Georgia), 1904,	<i>M.E.</i>
O'Neill, Charles Leo, A.B. (Seton Hall College), 1904,	<i>M.D.</i>
Parker, James Heber, P.D. (Phila. Coll. of Pharmacy), 1902,	<i>A.B.</i>
Parker, Lina Maud, A.B. (Univ. of Wash.), 1892,	<i>M.D.</i>
Patterson, Lucius Lamar, A.B. (Miss. Coll.), 1898, A.M. (same), 1899,	<i>E.E.</i>
Patterson, Robert Rhoode, A.B., 1903,	<i>M.D.</i>
Patton, William Fearn, Jr., A.B. (Hampden-Sidney), 1903,	<i>E.E.</i>
Payne, Charles Rockwell, A.B., 1902,	<i>M.D.</i>
Peace, William Stearly, LL.B., 1904	<i>A.B.</i>
Pease, George Norman, A.B., 1904,	<i>M.D.</i>
Perry, John Westley, B.S. (Biddle Univ.), 1901,	<i>D.V.M.</i>
Philipe, James J., M.D. (Columbia Univ.), 1894,	<i>Sp. M.D.</i>
Pierce, Paul Leon, B.S. (Chattanooga Normal Univ.), 1901,	<i>C.E.</i>
Plunkett, Thomas Francis, A.B. (St. Johns, Fordham), 1904,	<i>M.D.</i>
Poor, Ben Perley, A.B., 1903,	<i>LL.B.</i>
Powell, Fred Jackson, B.S. (Coll. of City of N. Y.), 1903,	<i>C.E.</i>
Quisumbing, Emilio, B.A. (San Juan), 1900,	<i>C.E.</i>
Ray, Anna Elizabeth, A.B. (N. Y. Normal Coll.), 1899, A.M. (N. Y. Univ.), 1902,	<i>(N. Y. M.D.</i>
Reed, Lucy Carleton, A.B., 1904,	<i>M.D.</i>
Richardson, Frank Howard, A.B., 1904,	<i>M.D.</i>

Robertson, Ralph Kenyon, A.B., 1904,	<i>LL.B.</i>
Robertson, Ralph Noyes, B.S. (Colo. Coll.), 1901,	<i>M.E.</i>
Robinson, Charles Albert, A.B. (Johns Hopkins), 1903,	<i>M.E.</i>
Rogers, Ola Dee, Ph.B. (Otterbein Univ.), 1901,	<i>A.B.</i>
Rosenberg, Leopold, M.D. (Bellevue Med Coll.), 1887,	<i>Sp.M.D.</i>
Roudebush, Roy Everett, A.B. (Indiana Univ.), 1903,	<i>M.E.</i>
Ryan, Walter J., A.B. (Oberlin), 1903,	<i>C.E.</i>
Sanford, Lester Morse, B.P. (E. Stroudsburg Normal), 1901,	<i>C.E.</i>
Saulsbury, Henry Wilson, A.B. (Western Md. Coll.), 1902,	<i>M.E.</i>
Schapiro, Samuel Hyman, A.B. (Johns Hopkins), 1904,	<i>M.E.</i>
Schoeilkopf, Walter Horton, C.E. (Penn. Mil. Coll.), 1904,	<i>M.E.</i>
Schwartz, Otto, B.E. (Tulane Univ.), 1904,	<i>M.E.</i>
Schwartz, Samuel Robert, A.B. (City Coll. of N. Y.), 1903,	<i>M.E.</i>
Scranton, William Henry, A.B., 1903,	<i>M.E.</i>
Sheldon, Helen Griswold, A.B. (Vassar) 1891,	<i>Sp.B.S.A.</i>
Silverman, Alexander, Ph.B. (Western Univ. of Penn.), 1902,	<i>A.B.</i>
Simonton, Ira Boyce, B.S. (Univ. of Fla.), 1903,	<i>M.E.</i>
Smithe, Percy Allis Winans, A.B., 1903,	<i>M.D.</i>
Sneckenberger, Earl Miner, Ph.B. (Heidelberg Univ.), 1902,	<i>C.E.</i>
Specht, William Henry, D.D.S. (N. Y. C. D.), 1902,	<i>M.D.</i>
Spencer, George Lawton, M.E. (Brown Univ.), 1904,	<i>Sp.M.E.</i>
Stroud, Bert Bernette, B.S., 1891, D.Sc., 1895, D.V.M., 1903,	<i>M.D.</i>
Summer, Wilhelm Carl, A.B. (Newbery Coll.), 1902,	<i>M.E.</i>
Swisher, Donald DeWitt, A.B. (Univ. of Tenn.), 1903,	<i>B.Arch.</i>
Taber, Edmund Rhett, B.S. (Ala. Poly. Inst.), 1904,	<i>M.E.</i>
Tappan, Frank Girard, A.B. (Wash. and Jefferson), 1904,	<i>M.E.</i>
Tavener, Frank Lucius, B.C.E. (Mont. Agr. Coll.), 1903,	<i>M.E.</i>
Thompson, Hoxie Harry, B.S. (Austin Coll.), 1901,	<i>C.E.</i>
Thro, William Crooks, B.S.A., 1900, A.M., 1901,	<i>M.D.</i>
Tibbets, Harland Bryant, A.B., 1904,	<i>LL.B.</i>
Todd, Leona Estelle, A.B., 1903,	<i>M.D.</i>
Turner, William Joel, B.A. (Wash. and Lee Univ.), 1903,	<i>C.E.</i>
Viertels, Ephraim, B.S. (Cooper Union Inst.), 1902,	<i>C.E.</i>
Vilimek, Joseph, M.D. (Univ. of Prague), 1894,	<i>Sp. M.D.</i>
Walker, Fernando Murray, B.A. (National Coll. of Cordoba), 1900,	<i>E.E.</i>
Walker, William Joseph, A.B. (Coll. of City of N. Y.), 1904,	<i>M.D.</i>
Wanless, Richard, D.O. (Amer. Sch. of Osteopathy), 1900,	<i>M.D.</i>
Warner, Austin McRaven, A.B. (S. W. Presbyterian Univ.), 1901,	<i>M.E.</i>
Warner, Earle Spear, B.L. (Hobart Coll.), 1902,	<i>LL.B.</i>
Watkins, Warner Merriwether, B.S. (Va. Poly. Inst.), 1904,	<i>M.E.</i>

Way, Cassius, B.Agr. (Conn. Agr. Coll.), 1899,	D.V.M.
Weber, Florenz Pauline, M.E. (Clairon Normal), 1895,	Sp.A.B.
Weber, Salo, A.B. (Coll. of City of N. Y.), 1904,	M.D.
Welch, Stewart Henry, A.B. (Southern Univ.), 1902,	M.D.
West, Ray Benedict, B.S. (Utah Agr. Coll.), 1904,	C.E.
Wick, Frances Gertrude, A.B. (Wilson College), 1897,	A.B.
Wight, Herbert, A.B. (Union Coll.), 1901,	LL.B.
Wills, John Gordon, B.S.A. (Univ. of Vermont), 1903,	D.V.M.
Wilson, Elbert Andrew, B.S., 1900,	M.E.
Wilson, John Bailey, B.S. (Phila. Cent. H. S.), 1902,	C.E.
Winans, James Albert, A.B. (Hamilton Coll.), 1897, A.M. (same), 1900,	LL.B.
Winslow, Elizabeth Bishop, A.B., 1901,	M.D.
Wise, Frank Lounsbury, B.A. (Coll. of City of N. Y.), 1904,	M.E.
Wismar, William Frederic, A.B. (Univ. of Rochester), 1901,	M.D.
Wolheim, Louis Robert, B.S. (Coll. of City of N. Y.), 1903,	M.E.
Wood, Charles Montgomery, A.B. (Princeton), 1903,	M.E.
Wood, Frank Travers, B.S. (Va. Mil. Inst.), 1904,	M.D.
Woodhull, Stephen Curtis, D.O. (Am. School of Osteopathy), 1900,	M.D.
Wortman, Otto, B.S. (City Coll. of N. Y.), 1903,	M.E.
Wright, Arthur Mullin, A.B., 1903,	M.D.
Wright, Thomas Temple, B.A. (Richmond Coll.), 1904,	C.E.
Ycasiano-Roxas, Francisco, B.A. (Atenco de Manila), 1903,	M.E.

UNDERGRADUATES.

The figures 1, 2, 3, 4, indicate Freshman, Sophomore, Junior, and Senior years, respectively, in the four year courses. In the three year course in Law, 1, Jr., and Sr., indicates first year, Junior, and Senior respectively. In the three year course in Veterinary Medicine, 1, 2, and 3, indicate first, second, and third year, respectively. Special Students are not classified by years.

Abrahams, Morris Landa, B.S. in M.E.,

	<i>New Braunfels, Tex.</i> ,	1 Mech. Eng.
Ackart, Everett Gunner, Ph.B.,	<i>Schaghticoke,</i>	4 Mech. Eng.
Acker, William Lewis,	<i>Scranton, Pa.,</i>	4 Mech. Eng.
Ackerman, Golden Alice,	<i>Fayetteville,</i>	1 Arts
Acklin, James Montgomery,	<i>Toledo, O.,</i>	3 Mech. Eng.
Adair, Craig,	<i>Wilmington, Del.,</i>	2 Mech. Eng.
Adams, Arthur Garfield,	<i>Ithaca,</i>	Jr. Law
Adams, Cuyler Culver,	<i>Duluth, Minn.,</i>	4 Mech. Eng.
Adams, Francis Salisbury,	<i>Durwood, Minn.,</i>	2 Mech. Eng.
Adams, Francis Spearman,	<i>Sharon, Pa.,</i>	4 Mech. Eng.
Adams, Frank Avery,	<i>Coxsackie,</i>	1 Law
Adams, Thomas Dickinson, A.B.,	<i>New Orleans, La.,</i>	4 Mech. Eng.
Adendorff, John, <i>Johannesburg, Transvaal, So. Africa,</i>		2 Mech. Eng.
Adye, Elton Merville, Ph.B.,	<i>Fredonia,</i>	2 Mech. Eng.
Adler, George Herman,	<i>New York City,</i>	1 Arts
Agcaoili, Francisco,	<i>Piddig, Flocos Norte, P. I.,</i>	Sp. Arts
Agcaoili, Romarico,	<i>Piddig, Flocos Norte, P. I.,</i>	1 Civil Eng.
Agoglia, John Francis,	<i>New York City,</i>	1 Law
Aguilar, John Edward,	<i>Santiago, Cuba,</i>	1 Civil Eng.
Aitken, John Winfield, Jr., C.E.,	<i>Carbondale, Pa.,</i>	3 Mech. Eng.
Akin, Ransom Wallace,	<i>Carlisle, Ind.,</i>	Jr. Law
Albrech, Maximilian Claude,	<i>Lowville,</i>	3 Arts
Alcott, Arthur David,	<i>Troy, North End,</i>	1 Mech. Eng.
Aleman, Fernando, B.A.,	<i>Buenos Ayres, Arg. Rep.,</i>	1 Agr.
Alexander, Henry Walker,	<i>Montgomery, Ala.,</i>	2 Civil Eng.
Allan, Edwin Phipps,	<i>Montclair, N. J.,</i>	2 Mech. Eng.
Allan, William Lyn,	<i>Redlands, Calif.,</i>	Sp. Mech. Eng.
Allen, Arthur Augustus,	<i>Buffalo,</i>	1 Arts
Allen, Carl George,	<i>Williamsport, Pa.,</i>	4 Mech. Eng.
Allen, Charles Lellan,	<i>Ithaca,</i>	1 Arts
Allen, George Norwood,	<i>Easton,</i>	Sp. Agriculture

Allen, Margaret May,	Ithaca,	3 Arts
Allen, William Daniel,	Buffalo,	3 Mech. Eng.
Allen, William Paul,	Brooklyn,	1 Law
Aller, Howard Lewis,	Richmond Hill,	3 Mech. Eng.
Alliaume, Curtis Franklin,	Oriskany,	Jr. Law
Allison, Raymond Vance,	Statesville, N. C.,	1 Mech. Eng.
Almgren, Ebba Elizabeth,	Stockholm, Sweden,	3 Med. (N.Y.C.)
Altemose, Earl Stanley,	Scranton, Pa.,	2 Mech. Eng.
Ames, Harry Lee, A.B.,	Painter, Va.,	1 Mech. Eng.
Anderson, Clark Taggart,	Wooster, Ohio,	4 Mech. Eng.
Anderson, Egbert Butler,	Hopewell Junction,	Sp. Agr.
Anderson, Eroy Henry,	Hilton,	Sp. Agr.
Anderson, Frank Gibbs,	Auburn,	3 Mech. Eng.
Anderson, Hale,	Montclair, N.J.,	Sr. Law
Anderson, Harry O.,	Washington, Pa.,	2 Mech. Eng.
Anderson, Ross Peter,	Savannah,	1 Arts
Anderson, Victor William,	New York City,	1 Med. (N.Y.C.)
Andrews, Clarence Raplee,	Penn Yan,	1 Mech. Eng.
Andrews, Don Ethelbert,	Puzzler, Col.,	1 Civil Eng.
Andrews, Frederick Willment,	Millbrook,	3 Veterinary
Andrews, Harry Isaac, Jr.,	Ithaca,	4 Med. (N.Y.C.)
Anschutz, John DeWitt,	Long Island City,	1 Civil Eng.
Apgar, Clara Selkreg,	Ithaca,	4 Arts
Appel, Harris Arkush,	Denver, Colo.,	1 Civil Eng.
Appel, Willard Sands,	New York City,	1 Mech. Eng.
Argetsinger, James Cameron,	Burdett,	3 Arts
Armitage, Aaron Anthony,	Troy,	Sr. Law
Armstrong, Marion,	Pittsburg, Pa.,	2 Arts
Armstrong, Thomas Andrew,	Hamilton, Ont., Can.,	2 Civil Eng.
Armstrong, Walter James,	Fair Hill, Md.,	1 Mech. Eng.
Armstrong, Walter Jonas,	Rome,	3 Mech. Eng.
Arnold, Edward August,	New York City,	1 Med. (N.Y.C.)
Arnold, Lawrence,	Brooklyn,	Jr. Law
Arnold, Percy Linden,	Bergen,	2 Mech. Eng.
Arnold, Turner Schutte,	Clarion, Pa.,	1 Mech. Eng.
Arnson, Rhoda,	Buffalo,	Sp. Arts
Aronovici, Charles, B.L.,	Philadelphia, Pa.,	4 Agriculture
Aronson, Henry,	Brooklyn,	3 Med. (N. Y. C.)
Arosemena, Charles Julius,	Guayaquil, Ecuador,	1 Med. (N. Y. C.)
Arthur, Leon Leroy,	East Steuben,	Sr. Law
Arthur, William Morris,	East Steuben,	Sr. Law
Ash, Marion Jennie,	Orange, Mass.,	2 Arts

Ashburner, Lesley,	Media, Pa.,	3 Civil Eng.
Ashley, Frederick Carl,	Honeoye,	4 Civil Eng.
Ashton, Frank Verne,	Ithaca,	1 Civil Eng.
Atwater, Fred Halsey,	Ithaca,	2 Agriculture
Atwater, Henry,	East Orange, N. J.,	3 Mech. Eng.
Austin, Benjamin Hale,	Honolulu, H. T.,	1 Mech. Eng.
Austin, Herbert Sidney,	Poughkeepsie,	2 Civil Eng.
Avery, Earl William,	Ilion,	1 Agriculture
Avery, Harry Bain,	West Taghkanic,	4 Med. (N. Y. C.)
Axtell, Percy J.,	Deposit,	3 Veterinary
Ayers, Horace Ernest,	New York City, Sp. Med. (N.Y.C.)	
Babcock, Hiram Howard,	Auburn,	1 Law
Babcock, Richard Elmer,	West Seneca,	Jr. Law
Baber, Charlotte,	New Rochelle,	1 Arts
Babson, Rea Edwin,	South Orange, N. J.,	3 Mech. Eng.
Bachman, Charles Franklin,	Wilkes-Barre, Pa.,	1 Mech. Eng.
Backus, Lee Seldon,	Derby,	2 Veterinary
Backus, Newell D.,	Union Springs,	2 Veterinary
Backus, Robert Erle,	Jamestown,	3 Arch.
Bacon, Claude Benoni,	North Lansing,	4 Civil Eng.
Bacon, Mark Balderston,	Haddonfield, N. J.,	Sp. Agr.
Baer, Clarence Eugene,	New Castle, Pa.,	1 Arts
Baer, Ella Laura,	East Orange, N. J.,	1 Arts
Bagg, Egbert, Jr.,	Utica,	2 Arch.
Baggerly, Herman Douglas,	Clifton Springs,	3 Mech. Eng.
Baggs, Martha,	Fulton,	2 Arts
Bailey, Edith Anna,	Wellsboro, Pa.,	2 Architecture
Bailey, Frederick Eugene,	Ithaca,	Sp. Agr.
Bailliere, Marion Valentine,	Ellicott City, Md.,	2 Mech. Eng.
Bair, Maurice Zacharias,	Hanover, Pa.,	1 Civil Eng.
Baird, Alvin Walter, A.B.,	Portland, Ore.,	4 Med. (N. Y. C.)
Baird, Warner Green,	Chicago, Ill.,	1 Mech. Eng.
Baker, Augustus Lynn Landon,	Ledgewood, N.J.,	1 Med. (N.Y.C.)
Baker, Clarence Mulford,	La Moure, No. Dak.,	1 Civil Eng.
Baker, Frank James,	Brasher Falls,	3 Veterinary
Baker, Horace Patton,	Philadelphia, Pa.,	1 Civil Eng.
Baker, James Harvey,	Philadelphia, Pa.,	2 Mech. Eng.
Baker, James Nelson,	Owego,	4 Mech. Eng.
Baker, Louis Munson,	Oneonta,	1 Law
Baker, Norman Lockyer, A.B.,	Winter Park, Fla.,	4 Mech. Eng.
Baker, Ross Lee,	Greenwood,	2 Mech. Eng.

Baker, Thomas Wallace,	<i>Portland, Ore.,</i>	1 Mech. Eng.
Balcke, Walter Henry, A.B.,	<i>Quincy, Ill.,</i>	2 Mech. Eng.
Baldwin, Charles Reuben,	<i>Volney Center,</i>	2 Veterinary
Baldwin, Edna Cameron,	<i>Ithaca,</i>	1 Arts
Baldwin, Francis William,	<i>New York City,</i>	2 Med. (N.Y.C.)
Baldwin, Harry Clark,	<i>Ithaca,</i>	Jr. Law
Baldwin, Mabel Cornelia,	<i>Fort Erie, Ont., Can.,</i>	2 Arts
Baldwin, Thomas Abbott,	<i>Mt. Washington, Md.,</i>	1 Arch.
Baldwin, Wesley Manning,	<i>Brooklyn,</i>	2 Arts
Baldwin, Winfred Montgomery,	<i>Springfield, Mo.,</i>	2 Mech. Eng.
Baldwin, William Wright, Jr.,	<i>Burlington, Ia.,</i>	4 Arts
Ball, Sylvia Ernestine,	<i>Warren, Pa.,</i>	3 Arts
Ballance, Willis Henry, Jr.,	<i>Peoria, Ill.,</i>	3 Mech. Eng.
Ballard, John Carlos,	<i>West Falls Church, Va.,</i>	2 Mech. Eng.
Ballou, Clarence Maturin,	<i>No. Adams, Mass.,</i>	2 Mech. Eng.
Baltasar, Apolinario, B.S.,	<i>Manila, P. I.,</i>	1 Civil Eng.
Bamberger, Clarence Greenwald,	<i>Salt Lake City, Utah,</i>	1 Mech. Eng.
Bantel, Raymond Joseph Francis Xavier Aloysius,		
Barber, George Lynn,	<i>Rochester,</i>	1 Arts
Barbour, Anna Violet,	<i>West Chazy,</i>	1 Medicine
Barker, Orrin, A.B.,	<i>Indianapolis, Ind.,</i>	3 Arts
Barkhorn, Henry Charles,	<i>Rochester,</i>	1 Law
Barlow, Warren Stanley,	<i>Newark, N. J.,</i>	2 Med. (N. Y. C.)
Barnes, Caroline Francis,	<i>Syracuse,</i>	Sr. Law
Barnett, Victor Hugo,	<i>Phoenix,</i>	3 Arts
Barnhart, Clarence Davis,	<i>Trafalgar, Ind.,</i>	Sp. Arts
Barroll, Henry Edward,	<i>Washington, D. C.,</i>	4 Mech. Eng.
Barron, John Hall,	<i>Ithaca,</i>	2 Mech. Eng.
Barrows, Lee Earl,	<i>Nunda,</i>	1 Agriculture
Barsky, Michael Halpern,	<i>Olean,</i>	Sp. Mech. Eng.
Bartholomay, Herman,	<i>New York City,</i>	3 Med. (N. Y. C.)
Barton, Robert Charles,	<i>Rochester,</i>	2 Mech. Eng.
Barton, William Hill,	<i>Seattle, Wash.,</i>	3 Mech. Eng.
Barvian, Eugene John,	<i>Ashgrove, Mo.,</i>	1 Mech. Eng.
Bascome, George Lightbourne,	<i>Cowlesville,</i>	Jr. Law
Bassett, Deane Hendrick,	<i>Elmira,</i>	4 Mech. Eng.
Bassett, Robert Van Rensselaer,	<i>Carbondale, Pa.,</i>	1 Mech. Eng.
Bassett, Wilmer Wilson,	<i>Owego,</i>	Jr. Law
Batchelder, Charles Arthur,	<i>Interlaken,</i>	Sp. Agriculture
Bateman, James Garfield,	<i>Ithaca,</i>	Sp. Agriculture
Bateman, Warner Mifflin,	<i>Mt. Carmel, Pa.,</i>	1 Mech. Eng.
	<i>Glendale, O.,</i>	1 Mech. Eng.

Bates, Clarence Townley,	<i>Ithaca,</i>	1 Civil Eng.
Bates, Ellis Abram,	<i>Ithaca,</i>	4 Arts
Bates, Harry H.,	<i>Joliet, Ill.,</i>	3 Mech. Eng.
Batte, Thomas Robert, Jr., B.S. in C.E.,	<i>Bryan, Texas,</i>	3 Civil Eng.
Battle, Joel Allan, Jr.,	<i>Evanston, Ill.,</i>	1 Mech. Eng.
Baum, John Albert, B.S. in C.E.,	<i>Corsicana, Texas,</i>	4 Civil Eng.
Baumgardner, John Andrew,	<i>Lancaster, Pa.,</i>	4 Mech. Eng.
Baumgarten, Paul Jones,	<i>New York City,</i>	1 Architecture
Bautista, Mariano, B.A.,	<i>Manila, P. I.,</i>	Sp. Agriculture
Baxter, Allan Hayden,	<i>Buffalo,</i>	1 Mech. Eng.
Baxter, Milton Edwin,	<i>Elizabeth, N. J.,</i>	1 Med. (N.Y.C.)
Baxter, Roland Gillie,	<i>Tonawanda,</i>	1 Law
Beadle, Lynn Constant,	<i>Oxford,</i>	1 Mech. Eng.
Beaman, Charles Leicester,	<i>Ithaca,</i>	1 Mech. Eng.
Beardslee, Kenneth Phelps,	<i>Syracuse,</i>	4 Mech. Eng.
Beckary, Albert, Ph.G.,	<i>New York City,</i>	4 Med. (N.Y.C.)
Becker, Damas Brough,	<i>West Berne,</i>	4 Med. (N. Y. C.)
Becker, Neal Dow,	<i>Jamestown,</i>	Sr. Law
Becker, Otto Edward,	<i>Buffalo,</i>	2 Arts
Bedford, Alletta Langdon, A.B.,	<i>Haddonfield, N. J.,</i>	4 Med. (N.Y.C.)
Beebe, Charles Nelson,	<i>Hammondsport,</i>	4 Mech. Eng.
Beebe, Laurence Laverne,	<i>Alpine,</i>	3 Mech. Eng.
Beebee, Lewis,	<i>Aurora,</i>	3 Mech. Eng.
Bein, Felix Washington, B.S.,	<i>New York City,</i>	4 Mech. Eng.
Bell, Albert Mortimer,	<i>Glen Head,</i>	1 Med. (N.Y.C.)
Bell, Alfred Augustus,	<i>Morristown, N. J.,</i>	Sp. Med. (N.Y.C.)
Bell, Frances Louise,	<i>Binghamton,</i>	4 Arts
Bell, Harold I.,	<i>West Bay City, Mich.,</i>	4 Civil Eng.
Bellinger, Daniel Lawrence,	<i>Ithaca,</i>	4 Mech. Eng.
Bellows, Brian Chandler,	<i>Richmond,</i>	3 Mech. Eng.
Beman, Myron Clark,	<i>Binghamton,</i>	2 Mech. Eng.
Bender, Oswald Lewis,	<i>Martinsburg, W. Va.,</i>	2 Mech. Eng.
Bendheim, Berthold Herbert,	<i>Houston, Texas,</i>	2 Mech. Eng.
Benedict, Albert Newell,	<i>Yonkers,</i>	4 Med. (N. Y. C.)
Benedict, Julius Thompson,	<i>Chicago, Ill.,</i>	1 Mech. Eng.
Benjamin, Marion,	<i>Cleveland, O.,</i>	3 Architecture
Bennett, Alice, M.D., Ph.D.,	<i>Wrentham, Mass.,</i>	Sp. Med. (N.Y.C.)
Bennett, Fred Lee,	<i>Rochester,</i>	4 Arts
Bennett, Harold William,	<i>London, England,</i>	2 Mech. Eng.
Bennett, Ray,	<i>Ithaca,</i>	3 Arts
Bennett, Robert Palmiter,	<i>Rochester,</i>	4 Arts
Benny, James Edwin,	<i>Bayonne, N. J.,</i>	1 Law

Bentley, William Kimball,	Pulaski,	1 Law
Bergen, Madeline Estelle,	Ithaca,	2 Arts
Bergen, Robert Robinson,	Ithaca,	1 Arts
Berkeley, Landon Robinson,	Orange, Va.,	2 Mech. Eng.
Berkowitz, Samuel Simpson,	Brooklyn,	2 Arts
Berliner, Leopold Henry,	New York City,	4 Med. (N.Y.C.)
Bernstein, Morris Jerome,	Brooklyn,	1 Law
Berry, Edward Thomas,	Irving,	4 Arts
Berry, Romeyn, A.B.,	Hudson,	Jr. Law
Berryman, Ashley Merle,	New York City,	1 Civil Eng.
Bessey, Mabelle Abbot,	Brooklyn,	3 Arts
Best, Ralph Emerson,	Pittsburg, Pa.,	1 Mech. Eng.
Betts, Benjamin Harrison,	Tonawanda,	2 Arts
Bevin, Sydney,	New York City,	1 Mech. Eng.
Bianchi, Francesco,	New York City,	4 Arts
Bidstrup, Daniel Mark,	Brooklyn,	Sp. Agriculture
Bierma, Arthur Graham,	Buffalo,	1 Mech. Eng.
Bigelow, Oramel Harry,	Palmyra, Wis.,	1 Mech. Eng.
van Bijleveld, Joannes Samuel,	The Hague, Holland,	1 Mech. Eng.
Bilderbeck, George Leslie,	So. Hartwick,	3 Civil Eng.
Bills, George Dudley, Jr.,	Oak Park, Ill.,	1 Arts
Billwiller, Charles James, Jr.,	Brooklyn,	3 Mech. Eng.
Billwiller, Ernest Oswald,	Brooklyn,	1 Mech. Eng.
Bingham, Nellie Holmes,	Santa Clara,	4 Arts
Bingham, Samuel Almeron,	Chicago, Ill.,	4 Mech. Eng.
Bintz, William Henry, Jr.,	Salt Lake City, Utah,	1 Arts
Birchenough, Harry,	Paterson, N.J.,	4 Arts
Bird, Edward James,	Ironton, O.,	1 Mech. Eng.
Birmingham, Joseph Leo,	Elmira,	1 Veterinary
Bishop, Roberts Huntington,	Norwich, Conn.,	1 Arts
Bishop, Wheeler Scott,	Ithaca,	4 Arts
Bishop, William Smart,	Savannah,	3 Mech. Eng.
Black, Charles Willard,	Cincinnati, O.,	4 Mech. Eng.
Black, Hampton,	Montgomery, Ala.,	2 Mech. Eng.
Blackwell, Howard Clayton,	Brooklyn,	4 Mech. Eng.
Blair, Edward Johnson,	Chicago, Ill.,	4 Mech. Eng.
Blake, Alfred DeGroat,	Stapleton,	2 Mech. Eng.
Blake, Helen Elizabeth,	North Adams, Mass.,	1 Arts
Blakeslee, Irvin,	Coal Glen, Pa.,	1 Mech. Eng.
Blatch, Nora Stanton,	Ithaca,	4 Civil Eng.
Bliss, George Ripley, B.A.,	Washington, D. C.,	3 Mech. Eng.
Block, Alexander,	New York City,	2 Med. (N.Y.C.)

Blum, Charlotte,	New York City,	3 Med. (N.Y.C.)
Blunt, Albert Church, Jr.,	Cheyenne, Wyo.,	2 Mech. Eng.
Boardman, Albert Jay,	Philadelphia, Pa.,	1 Mech. Eng.
Boden, Dorothy Anne,	Syracuse,	2 Arts
Boegehold, Carl Winter,	Mt. Vernon,	3 Mech. Eng.
Boegehold, Edwin Swart,	Mt. Vernon,	1 Mech. Eng.
Boeker, Leopold,	Richmond Hill,	1 Mech. Eng.
Boesch, Clarence Edwin,	Ithaca,	4 Civil Eng.
Bogardus, Thomas Lowe,	Mt. Vernon, O.,	1 Arts
Bogert, Clinton Lathrop,	Binghamton,	4 Civil Eng.
Bogert, George Gleason,	Ithaca,	3 Arts
Bohan, Francis James,	Auburn,	1 Mech. Eng.
Bohrer, Walter,	Cincinnati, O.,	4 Mech. Eng.
Boldt, George Charles, Jr.,	New York City,	4 Arts
Bolger, Elizabeth May,	Philadelphia, Pa.,	3 Arts
Boorstein, Joseph Aaron, A.B.,	New York City,	4 Civil Eng.
Booth, Elmir James,	Reed City, Mich.,	1 Mech. Eng.
Boring, Edwin Garrigues,	Philadelphia, Pa.,	1 Mech. Eng.
Bosler, Harlan Gibson,	Indianapolis, Ind.,	Jr. Law
Bostroem, August, Jr., B.S.,	New York City,	3 Mech. Eng.
Bouck, Ida Julia,	Schoharie,	1 Arts
Bouldin, Wood, Jr.,	Houston, Va.,	3 Civil Eng.
Bourne, Ralph Hinckley,	Cleveland, O.,	4 Mech. Eng.
Bousfield, Harold Walgrave,	Brooklyn,	1 Architecture
Bower, John Gosh, Jr.,	Hagerstown, Md.,	3 Arts
Bowes, Thomas David, Jr.,	Philadelphia, Pa.,	1 Mech. Eng.
Bowman, Horatio Job,	Alton, Ill.,	1 Arts
Bowman, Robert H.,	Kansas City, Mo.,	1 Civil Eng.
Bowman, Ralph McLane,	Washington, D. C.,	1 Civil Eng.
Bowman, Sadie Agatha,	Norwich, Conn.,	1 Arts
Boxmeyer, Charles Herbert, A.B.,	Holden, Mo.,	3 Med. (N. Y. C.)
Boyajian, Haig Milton,	New York City,	1 Civil Eng.
Boyce, Benjamin Knowlton,	Salamanca,	2 Mech. Eng.
Boyce, Ivan Albert,	Greene,	3 Mech. Eng.
Boyce, Marjorie Helen,	Salamanca,	Sp. Arts
Bozenhardt, William Frederick,	New York City,	4 Med. (N. Y. C.)
Bradley, Alva,	Cleveland, O.,	1 Mech. Eng.
Bradley, Charles Leiniger,	Cleveland, O.,	1 Mech. Eng.
Bradley, Elmer Percy,	Pemaquid, Me.,	2 Mech. Eng.
Bradley, Helen Maria,	Southport, Conn.,	4 Arts
Bradley, James Chester, A.B.,	Parral, Mexico,	3 Arts
Bradley, John Ruskin,	King Ferry,	2 Medicine

Bradley, Lee R.,	Interlaken,	1 Mech. Eng.
Bradner, Harriet Batchelor,	Warwick,	Sp. Agr.
Brady, Frances Cecilia,	Canandaigua,	1 Arts
Brahmer, Leland Frank,	Lowville,	1 Mech. Eng.
Brainard, Albert Sereno,	East Hartford, Conn.,	4 Civil Eng.
Brainerd, Harold Affleck,	Westfield, N. J.,	2 Civil Eng.
Braman, James Lloyd,	Plattsburg,	Jr. Law
Bramdt, Otto, Jr.,	Newark, N. J.,	1 Arts
Branley, Helen Elizabeth,	Brooklyn,	4 Arts
Brannon, Frank Small,	Owensboro, Ky.,	1 Mech. Eng.
Brauner, Julius Frederick, Jr.,	Ithaca,	4 Civil Eng.
Braunworth, Percy Lewis,	Brooklyn,	3 Civil Eng.
Brayer, Nelson Garfield,	Rochester,	4 Mech. Eng.
Braymer, Daniel Harvey,	Hebron,	3 Arts
Breen, Thomas Alfred,	Ithaca,	1 Veterinary
Breger, Cappy Levinthal,	Brooklyn,	4 Arts
Bremer, Lewis, Jr.,	Philadelphia, Pa.,	1 Mech. Eng.
Brendler, Charles,	New York City,	1 Med. (N.Y.C.)
Brennan, Russell Henry,	Utica,	Jr. Law
Brewrink, John Edward, Ph.B.,	Pullman, Wash.,	2 Mech. Eng.
Brewster, Leo Allie,	Wolcott,	2 Arts
Brierley, Wilfrid Gordon,	Dover, N. H.,	1 Agriculture
Brigham, John Chester,	Ossining,	1 Civil Eng.
Brinckerhoff, Horace Everett,	Mt. Vernon,	2 Agriculture
Brinkerhoff, Albert David,	Springfield, Ill.,	3 Mech. Eng.
Brinley, Henry DeNyse, A.B.,	Long Branch, N. J.,	Jr. Law
Britten, Edwin Franklin, Jr.,	Jersey City, N. J.,	2 Mech. Eng.
Britton, Josephine,	Camden, N. J.,	Sp. Arts
Britton, Karl Beckwith,	Glenville, O.,	3 Mech. Eng.
Brockett, Arthur Andrew,	Little Falls,	3 Veterinary
Broder, Charles,	New York City,	4 Med. (N. Y. C.)
Brockway, Leon McMurray,	Wolcott,	1 Civil Eng.
Bromley, John Hallock,	Plattsburgh,	1 Mech. Eng.
Brooks, Nathaniel Preston, A.B.,	Charlestown, N. H.,	3 Med.(N.Y.C.)
Brough, Charles Young,	Hanover, Pa.,	3 Mech. Eng.
Brower, Bert,	Palatine Bridge,	1 Arts
Brown, Aaron,	New York City,	3 Med. (N. Y. C.)
Brown, Alice Fargo,	Buffalo,	2 Arts
Brown, Clyde Channing,	New Hampton, N. H.,	Jr. Law
Brown, Cleo Weasley,	Bemus Point,	1 Civil Eng.
Brown, Edmond Swain,	Winsted, Conn.,	2 Arts
Brown, Franklin Reed,	Buffalo,	1 Law

Brown, George Anthony,	Hannibal, Mo.,	4 Civil Eng.
Brown, George Nelson,	Ogdensburg,	1 Mech. Eng.
Brown, George Teall,	New York City,	2 Mech. Eng.
Brown, Grover Charles,	Ithaca,	3 Civil Eng.
Brown, Harold William,	Jersey City, N. J.,	1 Medicine
Brown, Robert Harry,	Detroit, Mich.,	1 Mech. Eng.
Brown, Herbert Childs,	Ithaca,	4 Mech. Eng.
Brown, Kenneth Doty,	New York City,	4 Arts
Brown, Stanley Doty,	New York City,	4 Arts
Brown, William Niver,	Cortland,	4 Mech. Eng.
Browne, Charles Lowman,	Aberdeen, So. Dak.,	1 Civil Eng.
Browne, Maurice Joseph,	Great Barrington, Mass.,	1 Arts
Browne, William Henry, Jr.,	Great Barrington, Mass.,	3 Mech. Eng.
Bruce, Harry Alexander,	Evanston, Ill.,	2 Mech. Eng.
Bruce, Oliver Standard, Jr.,	Buffalo,	1 Mech. Eng.
Brundage, Floyd Collins,	Andover,	3 Mech. Eng.
Brundage, Frank Homer,	Bradford, Pa.,	3 Civil Eng.
Bryan, Lemuel Berry, B.C.E.,	Ithaca,	4 Civil Eng.
Bryant, Frank Alva Mitchell,	New York City,	2 Med. (N. Y. C.)
Bryant, Henry Weare,	Riverside, Ill.,	4 Arts
Bryant, Janette Staples,	Binghamton,	1 Medicine
Buchanan, Isaac Victor,	Pittsburg, Pa.,	3 Arts
Buckbee, Blanche,	French Mountain,	3 Arts
Budd, Percy Hiram,	Pleasant Valley,	1 Civil Eng.
Bües, Christian Rudolph August,	Achim, Germany,	2 Agr.
Buffington, Ralph Maurice,	Berkshire,	3 Veterinary
Bull, Harry Gifford,	Keeseville,	1 Arts
Bullis, Charles Gardner,	Olean,	1 Arts
Bullis, Seth Madison,	Olean,	1 Mech. Eng.
Bunker, Charles Orville Waite, B.Sc.,	Hebron, Neb.,	4 Med. (N. Y. C.)
Burd, Merritt Coleman,	Dundee,	4 Arts
Burgoon, Charles Eli, B.M.E., M.E.,	Estelle, Texas,	4 Mech. Eng.
Burkhart, John Conner,	Portland, Ore.,	1 Mech. Eng.
Burley, Arthur James,	Angola,	3 Veterinary
Burlingame, Geoffrey Gorton,	Syracuse,	1 Agriculture
Burlingame, Roderick Sedgwick,	Syracuse,	3 Arts
Burnell, Eugene Dickinson,	Mobile, Ala.,	3 Civil Eng.
Burnham, Enoch Lewis, A.B.,	Berwyn, Pa.,	2 Civil Eng.
Burnham, Henry Gordon,	Glens Falls,	3 Arts
Burnham, Trumbull Griswold,	Willimantic, Conn.,	2 Mech. Eng.
Burns, Charles,	Brooklyn,	1 Mech. Eng.

Burns, Herbert Alexander, B.S.,	<i>Oakland, Calif.</i> ,	Sp. Mech. Eng.
Burns, Robert,	<i>Brooklyn,</i>	Jr. Law
Burns, Walter William,	<i>Greenport,</i>	3 Mech. Eng.
Burr, George Houston,	<i>Natick, Mass.</i> ,	3 Architecture
Burr, Henry Frank,	<i>Oakdale,</i>	1 Mech. Eng.
Burritt, Maurice Chase,	<i>Hilton,</i>	Sp. Agriculture
Burrows, Earle Nelson,	<i>Deposit,</i>	2 Civil Eng.
Burtis, Morse Tillinghast,	<i>Buffalo,</i>	1 Arts
Burton, Howard Blaine,	<i>Brocton,</i>	3 Architecture
Burwell, William Turnbull, Jr.,	<i>Ithaca,</i>	1 Mech. Eng.
Busbee, Christiana, A.B.,	<i>Raleigh, N. C.</i> ,	4 Arts
Bush, George Wendell,	<i>Berkshire,</i>	3 Agriculture
Bush, John Locke,	<i>Kennedy,</i>	1 Civil Eng.
Butchman, Abraham,	<i>New York City,</i>	1 Med. (N.Y.C.)
Butler, Bert S,	<i>Hermitage,</i>	4 Arts
Butler, Robert Paul,	<i>Cedar Rapids, Ia.</i> ,	4 Arts
Butler, Ward Milton,	<i>Perry,</i>	Sp. Agriculture
Buttery, Howard Routledge,	<i>Westfield,</i>	1 Arts
Button, Harry Freeman,	<i>Forest Home,</i>	1 Agriculture
Cahill, Francis Joseph, A.B.,	<i>Hoosick Falls,</i>	3 Med. (N. Y. C.)
Cairns, Edward,	<i>Montclair, N. J.</i> ,	2 Mech. Eng.
Calderon, George Alvarez,	<i>Washington, D. C.</i> ,	4 Mech. Eng.
Caldwell, Franklin Woods,	<i>Meadville, Pa.</i> ,	1 Law
Caldwell, Isabel, A.B.,	<i>Brooklyn,</i>	3 Med. (N. Y. C.)
Caldwell, Mary Foster,	<i>Brooklyn,</i>	1 Arts
Calhoum, Tracy Jennings,	<i>Cleveland, O.</i> ,	1 Mech. Eng.
Calkins, Albert Smith,	<i>Palmyra, Wis.</i> ,	1 Mech. Eng.
Camp, Arthur Dutton,	<i>Upper Montclair, N. J.</i> ,	4 Arts
Campbell, Donald Argyll,	<i>Brooklyn,</i>	1 Civil Eng.
Campbell, Mary Theresa,	<i>Edmeston,</i>	1 Arts
Campiou, Edward Winslow,	<i>Troy,</i>	3 Mech. Eng.
Canaga, Gordon Byron, B.A.,	<i>Scio, O.</i> ,	2 Civil Eng.
Canavarro, Georges de Souza,	<i>Honolulu, H. T.</i> ,	1 Agriculture
Candee, Allan Harry,	<i>Hinsdale, Ill.</i> ,	3 Mech. Eng.
Candee, Ben Steele,	<i>Hinsdale, Ill.</i> ,	1 Agriculture
Carden, William Henry,	<i>Chicago, Ill.</i> ,	1 Architecture
Carlozo, Francis Henry,	<i>Orangeburg, S. C.</i> ,	Sp. Agriculture
Carlin, Harry Vincent Aloysius, A.B.,	<i>Brooklyn,</i>	1 Civil Eng.
Carlson, Clarence Dean,	<i>Owego,</i>	1 Mech. Eng.
Carman, John Alexander,	<i>Ithaca,</i>	1 Agriculture
Carman, Phillip Durkee,	<i>Manila, P. I.</i> ,	1 Arts
Carnes, Frederick,	<i>Wilmington, Del.</i> ,	1 Mech. Eng.

Carney, John James,	<i>Antwerp,</i>	1 Arts
Carpender, Sydney Blucker,	<i>New Brunswick, N. J.,</i>	2 Mech. Eng.
Carpenter, Clinton Arthur,	<i>Chicago, Ill.,</i>	4 Mech. Eng.
Carpenter, George,	<i>Ithaca,</i>	3 Mech. Eng.
Carpenter, John Condict,	<i>Washington, D. C.,</i>	2 Mech. Eng.
Carter, Charles Edward,	<i>Geneva, O.,</i>	2 Mech. Eng.
Carver, Harry Eugene,	<i>Skaneateles,</i>	3 Mech. Eng.
Casper, Le Roy,	<i>Howes Cave,</i>	4 Mech. Eng.
Casper, William Lee,	<i>Brooklyn,</i>	2 Arts
Castellucci, Fred Adolph,	<i>New York City, 1 Med. (N. Y. C.)</i>	
Cautley, John Randolph,	<i>Ithaca,</i>	3 Mech. Eng.
Chace, Archibald Eastwood, A.B.,	<i>Far Hills, N. J.,</i>	3 Med. (N. Y. C.)
Chadovitz, Isaac,	<i>Brooklyn,</i>	4 Arts
Chadwick, Albert Angel,	<i>Port Jervis,</i>	2 Arts
Chamberlain, Frank Wilbut, B.S.,	<i>Burlington, Vt.,</i>	1 Veterinary
Chamberlain, Robert Franklin,	<i>Newark Valley,</i>	1 Mech. Eng.
Chambers, Norman Campbell,	<i>Batum, Russia,</i>	3 Mech. Eng.
Champaign, Leigh Marsh,	<i>Ithaca,</i>	3 Civil Eng.
Chandler, Horace Harry,	<i>Vineland, N. J.,</i>	4 Mech. Eng.
Chapman, Charles Frederick,	<i>Norwich, Conn.,</i>	3 Mech. Eng.
Chapman, Charles Henry,	<i>Washington, D.C.,</i>	Sp. Agriculture
Chapman, Frank Carey,	<i>Ogdensburg,</i>	2 Mech. Eng.
Chapman, George Mills,	<i>Chicago, Ill.,</i>	4 Arts
Chapman, Louis Ballantine,	<i>Hartford, Conn.,</i>	2 Med. (N.Y.C.)
Chapman, Milton,	<i>Gasport,</i>	4 Med. (N.Y.C.)
Chapin, Archer Louis,	<i>Thompsonville, Conn.,</i>	1 Arts
Chapin, Edward Eaton,	<i>Brooklyn,</i>	1 Civil Eng.
Chapin, Lester Grover,	<i>Brooklyn,</i>	1 Architecture
Chase, Arthur Reynolds, A.B.,	<i>Sioux City, Ia.,</i>	2 Civil Eng.
Chase, George Rowley,	<i>Warsaw,</i>	1 Veterinary
Chase, Herbert,	<i>Brooklyn,</i>	1 Mech. Eng.
Chase, Hopkins Cladd,	<i>Holcomb,</i>	1 Mech. Eng.
Chase, Lee Arthur,	<i>Gloversville,</i>	4 Agriculture
Chase, Le Grand,	<i>Union Springs,</i>	4 Arts
Chase, Lyle Glentworth,	<i>King Ferry,</i>	1 Mech. Eng.
Chase, Nellie Louise,	<i>Lyndon, Vt.,</i>	Sp. Arts
Chase, Richard Wade,	<i>Holyoke, Mass.,</i>	4 Civil Eng.
Chatfield, Clarence Edward,	<i>Buffalo,</i>	1 Mech. Eng.
Cheney, Jane Button,	<i>Franklinville,</i>	3 Arts
Chesebrough, Edith Garfield,	<i>Syracuse,</i>	4 Arts
Child, Frank Samuel, Jr., Ph.B.,	<i>Fairfield, Conn.,</i>	1 Med. (N. Y. C.)
Childs, Lysander D.,	<i>Columbia, S. C.,</i>	3 Mech. Eng.

Chittenden, Abram Baldwin,	Burlington, Iowa,	1 Law
Choate, Richard Pearse, M.E.,	Roslyn, Md.,	3 Mech. Eng.
Chormann, Irving Otto,	Niagara Falls,	3 Arts
Christy, Grace,	Ford City, Pa.,	2 Arts
Christy, Mary Agnes,	Ford City, Pa.,	1 Arts
Church, Elizabeth Hoyt,	Kingston, Pa.,	4 Arts
Churchill, Eleanor Elizabeth,	Buffalo,	1 Arts
Clapp, John Henry, B.S.,	Washington, D. C.,	Sr. Law
Clapp, Percy Edwin,	North Rush,	1 Agriculture
Clark, Alice Laura,	Chester, Conn.,	1 Arts
Clark, Charles Frederick, B.S.,	Glover, Vt.,	Sp. Agriculture
Clark, Clifford,	Belfast,	1 Mech. Eng.
Clark, Ellen Stout, B.P.,	Riegelsville, Pa.,	1 Arts
Clark, Emily Anna,	Hamilton,	4 Arts
Clark, George Horace,	Rochester,	1 Medicine
Clark, John Porter,	Rochester,	4 Arts
Clark, John Powell,	Norwood,	3 Arts
Clark, Kathleen Bell,	Davenport, Iowa,	3 Arts
Clark, William Lewellyn,	Ithaca,	1 Veterinary
Clark, Wilson Delano,	Newark, N. J.,	1 Arts
Clark, Zella Maria, B.A.,	Bay View, P. E. Is., Can.,	4 Med. (N. Y. C.)
Clarke, Edgar Whitney,	Derby, Conn.,	4 Mech. Eng.
Clarke, Van Allen Shields,	Washington, D. C.,	1 Mech. Eng.
Cleary, John Kearney,	Medina,	Jr. Law
Cleaver, Fred Everett,	Odessa,	1 Veterinary
Cleaves, Edward Warren,	Salisbury Mills,	2 Agriculture
de Clercq, Clarence Fred,	Lebanon,	2 Civil Eng.
Cleveland, Fred Percy,	Holyoke, Mass.,	3 Mech. Eng.
Cleveland, Harry Whitehill, C.E.,	Newburgh,	3 Mech. Eng.
Cleveland, Lou Baker,	Watertown,	2 Civil Eng.
Cleveland, Milo L.,	Brockport,	2 Civil Eng.
Clinger, Daniel, Jr.,	Milton, Pa.,	4 Arts
Close, John Campbell, B.Sc.,	Sydney, N.S. W., Aust.,	4 Mech. Eng.
Clurman, Morris Joseph,	New York City,	4 Arts, 1 Medicine
Coan, Raymond Church,	Hilo, H. T.,	1 Architecture
Cobb, Charles Sherman,	Albany,	4 Architecture
Cobb, Herbert Lawrence,	Ithaca,	Jr. Law
Cochran, Samuel Adams,	Little Rock, Ark.,	1 Mech. Eng.
Cocke, Charles Hartwell, B.A.,	Columbus, Miss.,	4 Med. (N.Y.C.)
Coe, Benjamin Steele,	Waterbury, Conn.,	1 Mech. Eng.
Coe, Ralph Brewster,	Oxford,	2 Civil Eng.

Coe, Robert Lewis,	Waterbury, Conn.,	1 Arts
Coelho, Afrodisio Sampaio,	Sao Paulo, Brazil,	2 Agriculture
Coffin, Ernest Linwood,	Ashland, Me.,	1 Med. (N.Y.C.)
Coffin, Fielder Juilliard,	Genesee,	Sp. Mech. Eng.
Coffin, Harry Randolph,	Athens,	1 Mech. Eng.
Coffin, Helen,	Albany,	3 Arts
Coffin, John Dix,	Glens Falls,	3 Arts
Cogan, Clement James,	Bayonne, N. J.,	1 Civil Eng.
Cogswell, Walter Kingman,	Etna,	1 Veterinary
Cohen, Harry,	New York City, 2 Med. (N. Y. C.)	
Cohen, Henry Julius,	New York City, 1 Med. (N. Y. C.)	
Cohen, Mark,	New York City, 2 Med. (N. Y. C.)	
Cohen, Morton,	Brooklyn,	2 Mech. Eng.
Cohen, Rose, M.E., B.E.,	New York City, 4 Med. (N. Y. C.)	
Cohen, Samuel,	Brooklyn,	1 Arts
Coit, Robert Howland,	Grand Rapids, Mich.,	2 Arch.
Coleman, Charles Floyd,	Windsor,	1 Civil Eng.
Collier, George Dudley,	Rochester,	1 Mech. Eng.
Collin, Henry Beaumont,	Benton Centre,	2 Arts
Collin, John Bernhard,	Altoona, Pa.,	2 Mech. Eng.
Collins, John Dempsey,	Ithaca,	2 Arts
Collins, Lucy Jane,	Amsterdam,	2 Arts
Coltman, Robert, 3rd,	Denver, Colo.,	3 Civil Eng.
Coman, Grace Elizabeth,	Hamilton,	4 Arts
Comstock, Cora Pearl,	Gage,	1 Arts
Comstock, Jay Floyd,	Oxford,	3 Mech. Eng.
Condon, John, Jr.,	Philadelphia, Pa.,	1 Civil Eng.
Conen, John Joseph, Jr.,	Brooklyn,	2 Mech. Eng.
Conger, George Perrigo;	Groton,	2 Arts
Conger, Lawrence Jerome,	Groton,	2 Civil Eng.
Conkling, Roscoe Peter,	Brockport,	2 Arts
Conlee, George Dyer,	Ithaca,	4 Mech. Eng.
Conover, Hugh Bedle,	Atlantic Highlands, N. J.,	2 Mech. Eng.
Cook, Charles Ferguson,	Utica,	3 Civil Eng.
Cook, Charles Reed,	Trenton, Mo.,	2 Mech. Eng.
Cook, Elizabeth Ellsworth,	Ithaca,	3 Arts
Cook, Fayette Andrus,	Ithaca,	1 Mech. Eng.
Cook, Florence Margaret,	New York City,	Sp. Agriculture
Cook, George Tandy,	Canton, O.,	1 Agriculture
Cook, Leland Howard Dudley,	Newfield,	2 Med. (N.Y.C.)
Cooley, James Allen,	Canandaigua,	1 Medicine
Coolidge, Susan Lois,	West Hartford, Conn.,	3 Arts

Coons, Paul Delmont,		
Cooper, Gordon Dare,	4 Civil Eng.	
Cooper, Le Brun,	1 Agriculture	
Cooper, Robert John,	3 Mech. Eng.	
Coops, Frank Harvey, M.D.,	1 Mech. Eng.	
Coors, Adolph, Jr.,	Sp. Med. (N.Y.C.)	
Corbin, Horace,	1 Arts	
Corman, Bruce Hall,	4 Civil Eng.	
Corman, Percy Hall,	3 Mech. Eng.	
Cornell, Charles Walter, Jr.,	1 Agriculture	
Cornell, Clara Garfield,	1 Arts	
Cornell, William Bouck,	1 Mech. Eng.	
Cornwall, Andrew Raymond,	3 Arts	
Corotis, Maxwell Edward,	1 Mech. Eng.	
Correll, Hugh,	Sr. Law	
Corwin, Charles Dudley,	Sp. Agriculture	
Corwin, Daniel Chauncey,	1 Mech. Eng.	
Cosgrove, Samuel Allison,	1 Mech. Eng.	
Cosgrove, Thomas,	1 Civil Eng.	
Costello, James Harry,	2 Med. (N.Y.C.)	
Coston, Pitt E.,	1 Civil Eng.	
Cothran, John Cleveland,	2 Mech. Eng.	
Cottle, Arthur Preston,	2 Arts	
Cotton, Donald Reed,	1 Arts	
Couch, George James,	E. Boston, Mass.,	1 Mech. Eng.
Courtright, Frank,	Fairmount,	1 Mech. Eng.
Covert, Earl Blunn,	Ithaca,	Jr. Law
Cowan, Lewis Andy, B.C.E.,	Aurora, Ill.,	2 Arts
Coward, Osmun Latrobe, B.S.,	Watervliet,	1 Law
Cox, Christopher Paul,	Bozeman, Mont.,	4 Civil Eng.
Cox, Herbert Randolph,	Charleston, S. C.,	2 Mech. Eng.
Coyle, Catherine Wilson,	Washington, D. C.,	1 Mech. Eng.
Coyle, James Francis,	Canton, O.,	4 Agriculture
Craig, Sam Nesbit,	New Orleans, La.,	Sp. Arts
Crandall, Frank Byron,	New York City, 4 Med. (N. Y. C.)	
Craver, Arthur William,	Pittsburg, Pa.,	3 Mech. Eng.
Crawford, Charlotte Holmes,	Wellsville,	3 Arts
Crawford, James Dale,	Ithaca,	2 Arts
Crawford, Mary Merritt, A.B.,	Nyack,	3 Arts
Crawford, Thomas Frew, B. S.,	Pittsburg, Pa.,	1 Mech. Eng.
Crawford, Willard John, Jr.,	Nyack,	2 Medicine
Cresswell, Howell Scott,	Philadelphia, Pa.,	4 Mech. Eng.
	Cleveland, O.,	1 Arts
	Ottumwa, Ia.,	3 Arts

Crew, Alfred, Jr.,	<i>Paterson, N. J.</i> ,	1 Mech. Eng.
Criasey, Harold Elverton,	<i>Jamestown,</i>	4 Arts
Crittenden, Eugene Casson,	<i>Oswayo, Pa.,</i>	4 Arts
Crocheron, Bertram Hanford,	<i>Brooklyn,</i>	Sp. Agriculture
Crofts, Fréderick Sharer,	<i>Little Falls,</i>	4 Arts
Crosby, Cyrus Richard,	<i>Penn Yan,</i>	4 Arts
Crosby, William Ernest,	<i>Middle Granville,</i>	1 Arts
Crosier, George Stanley,	<i>Buffalo,</i>	4 Mech. Eng.
Cross, Charles Norman,	<i>Warsaw,</i>	4 Mech. Eng.
Cross, Ralph Adam, A.B.,	<i>Neversink,</i>	Jr. Law
Crossett, Carolyn Hawley,	<i>Warsaw,</i>	4 Arts
Crouse, Jay Lansing,	<i>Syracuse,</i>	3 Mech. Eng.
Cuddeback, Edgar Gordon, A.B.,	<i>Port Jervis,</i>	3 Med. (N. Y. C.)
Cuddeback, Frank Elting,	<i>Port Jervis,</i>	4 Mech. Eng.
Cudebec, Albert Bennett,	<i>Ithaca,</i>	1 Civil Eng.
Cudimore, John Homer,	<i>New York City,</i>	4 Med. (N. Y. C.)
Cuervo, Manuel Victorino,	<i>Havana, Cuba,</i>	3 Mech. Eng.
Culkin, Morris Thaddeus,	<i>Oswego,</i>	1 Medicine
Cullen, Charles Raymond,	<i>Brooklyn,</i>	1 Mech. Eng.
Cunningham, Charles Webb,	<i>Greene,</i>	Jr. Law
Curry, Charles Henry,	<i>Pittsburg, Pa.,</i>	Jr. Law
Curry, Rowland Ashby,	<i>Wooster, O.,</i>	2 Architecture
Curtis, Florence Abbott,	<i>Port Chester,</i>	1 Arts
Curtis, Harold Bartlett,	<i>New Castle, Pa.,</i>	2 Arts
Curtis, Harry Leroy,	<i>New York City,</i>	2 Mech. Eng.
Curtiss, Edwin Stair,	<i>Cleveland, O.,</i>	3 Mech. Eng.
Cushing, Prentice,	<i>East Orange, N. J.,</i>	1 Mech. Eng.
Cushman, Robert Asa,	<i>Providence, R. I.,</i>	3 Agriculture
Custer, Lewis Bayard,	<i>Llanwellyn, Pa.,</i>	1 Civil Eng.
Cuthbert, Mary Margaret Ross,	<i>Dawson, Yukon Terr.,</i>	Sp. Painting
Cutler, Charles Evlynn, A.B.,	<i>Pembroke,</i>	3 Arch.
Cutter, Robert Delamere,	<i>Bethlehem, Pa.,</i>	1 Mech. Eng.
Dahmen, Ernest Anton,	<i>Ithaca,</i>	3 Civil Eng.
Daley, DeWitt Hayden,	<i>Chatham,</i>	3 Civil Eng.
Damon, Frederick Henry,	<i>Rochester,</i>	1 Mech. Eng.
Dana, Harold Edward,	<i>Brooklyn,</i>	1 Mech. Eng.
Dandridge, Edmund Pendleton,	<i>Leetown, W. Va.,</i>	3 Mech. Eng.
Dann, Alexander William,	<i>Downsville,</i>	2 Civil Eng.
Dann, William James,	<i>St. Louis, Mo.,</i>	1 Mech. Eng.
Darbois, Edmund Otto,	<i>West Hoboken, N. J.,</i>	4 Med. (N. Y. C.)
Darby, Clifford Torrey,	<i>St. Louis, Mo.,</i>	2 Mech. Eng.
Darby, Robert Neil Gordon,	<i>Fort Plain,</i>	1 Veterinary

Darling, Joshua Ferris,	Buffalo,	2 Arts
Darling, Nelson Jarvie,	Schenectady,	2 Mech. Eng.
Darlow, Alfred Miltenberger,	Indianapolis, Ind.,	3 Mech. Eng.
Darrow, Fred L.,	New York City,	1 Med. (N. Y. C.)
Darrow, Henry Dennison, Jr.,	Kingston,	2 Civil Eng.
Darrow, Warren Edwin,	Patchogue,	2 Civil Eng.
Daudt, Ralph Bruere,	Toledo, O.,	1 Civil Eng.
David, Lester Jesse,	Rochester,	2 Arts
Davidson, Benjamin,	Brooklyn,	1 Med. (N. Y. C.)
Davidson, James Edgar,	Hillburn,	1 Arts
Davie, Leon Clifton,	Belmont,	1 Veterinary
D'Avignon, Francis Joseph,	Au Sable Forks,	1 Med. (N. Y. C.)
Davis, Alexander Maxwell,	Brooklyn,	1 Law
Davis, Arthur Councilman,	Baltimore, Md.,	1 Civil Eng.
Davis, Charles Roy, A.B.,	Pine Bluff, Ark.,	1 Med. (N. Y. C.)
Davis, Cortland Woodbury,	Mexico,	2 Mech. Eng.
Davis, Elbert Rice,	Rushford,	4 Med. (N. Y. C.)
Davis, Ethel Louisa,	Buffalo,	1 Arts
Davis, George Creswell,	Milton, Pa.,	4 Arts
Davis, Henry Emerson,	Peabody, Mass.,	1 Mech. Eng.
Davis, Irland,	Washington, D. C.,	1 Architecture
Davis, Joseph,	Le Raysville, Pa.,	1 Agriculture
Davis, Leonard,	Auburn,	1 Civil Eng.
Davis, Max Warburton,	Torrington, Conn.,	1 Mech. Eng.
Davis, Meyer,	New York City,	1 Civil Eng.
Davis, Robert Menees,	Ewa, H. T.,	2 Civil Eng.
Davis, Roy Bingham, A.B.,	Norwood,	Jr. Law
Davis, Thomas George,	New York City,	3 Med. (N. Y. C.)
Davis, Tracy Egbert,	Buffalo,	2 Agriculture
Dawson, Horace Lathrop,	Evanston, Ill.,	2 Mech. Eng.
Day, Charles Iven,	Damascus, Me.,	4 Mech. Eng.
Day, Irvin Williams,	Utica,	3 Mech. Eng.
Day, Ralph Burnett,	Vienna, Va.,	3 Mech. Eng.
Day, Rodney Dean, B.A.,	Catskill,	3 Mech. Eng.
Dayton, Paul Kuykendall,	Towanda, Pa.,	4 Mech. Eng.
Dean, Arlton Knickerbocker,	Ithaca,	3 Veterinary
Dean, Elvira Dudley,	Ithaca,	2 Arts
Dean, Jennie Archer,	Ithaca,	1 Arts
Deane, Frank Putnam,	Fredonia,	1 Civil Eng.
De Bard, David Meade,	McMinnville, Tenn.,	2 Mech. Eng.
Decatur, Jay Halsey,	Peekskill,	2 Mech. Eng.
Decker, Asbury Clinton,	Prince Bay,	1 Civil Eng.

Decker, Frank Norton,	<i>Phoenix,</i>	Sr. Law
Deemer, Arthur Passavant,	<i>Greensburg, Pa.,</i>	4 Mech. Eng.
Deffenbaugh, Homer Crow,	<i>Mt. Pleasant, Pa.,</i>	3 Mech. Eng.
De Garmo, Robert Max,	<i>Ithaca,</i>	1 Civil Eng.
Deitz, Karl Soden,	<i>Gilbertsville,</i>	Jr. Law
De Laney, Wesley La Mont,	<i>Sayre, Pa.,</i>	2 Mech. Eng.
Delcassee, Georges,	<i>Buenos Aires, Arg. Rep.,</i>	1 Agriculture
Demary, Jackson,	<i>Charlestown, N. H.,</i>	Sp. Agr.
De Nike, Samuel Griffith,	<i>Salamanca,</i>	1 Law
Denison, Henry Strong,	<i>Denver, Colo.,</i>	4 Arts
Dennett, Helen Mae,	<i>Brooklyn,</i>	3 Arts
Dennett, William Alexander,	<i>Kittery, Me.,</i>	2 Mech. Eng.
Dennis, Nina A. A.B.,	<i>Binghamton,</i>	3 Med. (N. Y. C.)
Dennis, Samuel James,	<i>Dover, N. H.,</i>	Sp. Mech. Eng.
Denton, Francis Douglas,	<i>St. Louis, Mo.,</i>	4 Mech. Eng.
Denton, William,	<i>Port Jervis,</i>	1 Medicine
Desbecker, Harold Clarence,	<i>Buffalo,</i>	1 Mech. Eng.
Desbecker, John Warner,	<i>Buffalo,</i>	3 Mech. Eng.
Deshon, John James,	<i>Chenandega, Nicaragua, C. A.,</i>	Sp. Agr.
De Shong, Roy Crise,	<i>Levanna,</i>	1 Arts
DeVed, Charles McClelion,	<i>New Rochelle,</i>	3 Mech. Eng.
Dewey, George Steele, B.S.,	<i>Goldsboro, N. C.,</i>	4 Mech. Eng.
Dewey, Thomas Augustus, B.S.,	<i>Goldsboro, N. C.,</i>	3 Mech. Eng.
De Wolf, Harold,	<i>Bristol, R. I.,</i>	1 Med. (N. Y. C.)
Dibrell, Louis Nelson,	<i>Danville, Va.,</i>	2 Mech. Eng.
Dickerman, John Alonzo, Jr.,	<i>Gardner, Mass.,</i>	2 Mech. Eng.
Dickson, Charles Chester Byron,	<i>New Orleans, La.,</i>	1 Mech. Eng.
Diefendorf, Charles Wilson,	<i>Troy,</i>	3 Civil Eng.
Diehl, Clifford Samuel,	<i>Brooklyn,</i>	2 Mech. Eng.
Dimock, William Wallace, B.Agr.,	<i>Ithaca,</i>	3 Veterinary
Dingens, Walter Joseph,	<i>Buffalo,</i>	1 Civil Eng.
Dingle, Howard,	<i>Baltimore, Md.,</i>	4 Mech. Eng.
Di Rocco, Joseph,	<i>New York City,</i>	4 Med. (N. Y. C.)
Divine, John Howard,	<i>Ellenville,</i>	4 Mech. Eng.
Dodge, Arthur Byron,	<i>Lancaster, Pa.,</i>	2 Civil Eng.
Dodge, Lawrence Green, A.B.,	<i>Wenham, Mass.,</i>	3 Agriculture
Dods, John Palliser,	<i>Fredonia,</i>	1 Civil Eng.
Dodson, Martha Ethel, B.E.,	<i>Berwick, Pa.,</i>	2 Arts
Doig, John Robert,	<i>Greenwich,</i>	1 Mech. Eng.
Donahue, William James Aloysius, A.B.,	<i>Newark, N. J.,</i>	1 Med. (N. Y. C.)
Donaldson, Alexander Grosvenor,	<i>Detroit, Mich.,</i>	2 Architecture

Donaldson, Roderick Douglas,	<i>New York City</i> ,	2 Mech. Eng.
Donk, Rose Rudolph,	<i>Newark</i> ,	4 Arts, 1 Medicine
Donnan, Pearl,	<i>Marion, O.</i> ,	2 Arts
Donnellan, Mary Veronica,	<i>Binghamton</i> ,	2 Arts
Donnelly, Catherine Jessica,	<i>Phila., Pa.</i> ,	Sp. Arts
Doolittle, Harold Lukens,	<i>Pasadena, Calif.</i> ,	1 Mech. Eng.
D'Oronzo, Joseph Bonora,	<i>New York City</i> , 1 Med. (N. Y. C.)	
Douglas, Percy Gordon,	<i>New York City</i> ,	3 Civil Eng.
Douglass, Herbert McNair,	<i>Clyde</i> ,	1 Mech. Eng.
Downes, Henry Hackett,	<i>Denton, Md.</i> ,	1 Mech. Eng.
Downs, Charles Lefever,	<i>Williamsport, Md.</i> ,	2 Arts
Dragoshinoff, Dragoshin George, A.B.,	<i>Hirevo, Sevlievo, Bulgaria</i> ,	
		1 Agriculture
Drake, Archibald Edward,	<i>Buffalo</i> ,	1 Civil Eng.
Drake, Bertrand Francis, B.S.,	<i>St. Louis, Mo.</i> ,	4 Med. (N.Y.C.)
Drake, Raymond Rogers,	<i>Buffalo</i> ,	4 Mech. Eng.
Drake, William Allen, B.S.,	<i>Portland, Ind.</i> ,	3 Mech. Eng.
Drennen, Everett,	<i>Martins Ferry, O.</i> ,	1 Civil Eng.
Drew, John Bragg,	<i>Ithaca</i> ,	1 Veterinary
Droge, Harry William,	<i>Brooklyn</i> ,	1 Law
Drury, Alexander Getchell,	<i>Cincinnati, O.</i> ,	2 Mech. Eng.
Dubar, Violet Agnes,	<i>Titusville, Pa.</i> ,	3 Arts
DuBois, Arthur Wood,	<i>Hallstead, Pa.</i> ,	1 Arts
Du Bois, Henry Pastor,	<i>Hallstead, Pa.</i> ,	2 Mech. Eng.
DuBois, Leo Charles,	<i>Newburgh</i> ,	1 Med. (N.Y.C.)
DuBois, Phebe Lott,	<i>Holmdel, N. J.</i> ,	1 Medicine
Duckworth, Willard Demarest,	<i>New York City</i> ,	2 Mech. Eng.
Duffy, Charles Lester,	<i>New York City</i> ,	1 Arts
Dugan, William John,	<i>Pueblo, Colo.</i> ,	2 Arts
Dukarevitz, Louis,	<i>Brooklyn</i> ,	2 Med. (N. Y. C.)
Duke, William, Jr.,	<i>Wellsville</i> ,	Sr. Law
Dulaney, Stanley Joe,	<i>Paris, Texas</i> ,	1 Mech. Eng.
Dunbar, Jessie Ellen,	<i>Ithaca</i> ,	3 Arts
Dunlop, William Robert,	<i>Fayetteville</i> ,	4 Agriculture
Dunn, Thomas Lyteland,	<i>Petersburg, Va.</i> ,	2 Mech. Eng.
Dunning, Polly Hicks,	<i>Webster</i> ,	1 Arts
Durand, Albert Cyrus,	<i>Oberlin, O.</i> ,	3 Arts
Durand, William Levenworth,	<i>Ithaca</i> ,	2 Arts
Durgan, Claude Clarke,	<i>Saranac Lake</i> ,	1 Medicine
Durham, Glen Giffen, B.Sc., M.Sc.,	<i>Watsonstown, Pa.</i> ,	4 Mech. Eng.
Durk, Francis Lammerts,	<i>Niagara Falls</i> ,	1 Law
Durkan, Thomas Glenn,	<i>Watertown</i> ,	1 Arts
Durkan, William James,	<i>Watertown</i> ,	3 Civil Eng.

Durland, Alice Oakey,	Jamaica,	4 Arts
Durward, Alexander Adams David,	<i>Claremont, N. H.</i> ,	3 Agriculture
Duryea, Howard,	<i>Craigsville,</i>	2 Mech. Eng.
Duschak, Ernest Adolph,	<i>Buffalo,</i>	3 Civil Eng.
Dyer, Bessie Marian,	<i>Ithaca,</i>	Sp. Arts
Dyer, Walter Cheney,	<i>Chicago, Ill.,</i>	1 Mech. Eng.
Eagan, George Arthur,	<i>Washington, D.C.,</i>	2 Mech. Eng.
Eagan, Mary Helen,	<i>Schenectady,</i>	1 Arts
Earle, Edwin, Jr.,	<i>Detroit, Mich.,</i>	1 Agriculture
Earle, Harold Ashbury,	<i>Brooklyn,</i>	3 Arts
Earle, Irving Vann,	<i>Syracuse,</i>	Sr. Law
Earle, Theodore,	<i>Elizabeth, N. J.,</i>	1 Mech. Eng.
Eastman, D K.,	<i>Woodsville, N. H.,</i>	1 Veterinary
Eberhardt, Henry Ezra,	<i>Newark, N. J.,</i>	1 Mech. Eng.
Ebert, Laurence Rudolph,	<i>Vancouver Barracks, Wash.,</i>	4 Mech. Eng.
Eckel, Edward Jacob,	<i>Syracuse,</i>	2 Medicine
Eckert, Samuel Baltz,	<i>Devon, Pa.,</i>	1 Mech. Eng.
Edge, Alfred Joshua,	<i>Darlington, Md.,</i>	3 Civil Eng.
Edgerton, Franklin, 2d,	<i>Washington, D. C.,</i>	4 Arts
Edmunds, Louis Lake,	<i>Fredonia,</i>	2 Mech. Eng.
Edson, Ray Arthur,	<i>Crittenden,</i>	4 Arts, 2 Medicine
Edwards, Elmer,	<i>Forest Home,</i>	1 Civil Eng.
Edwards, Estelle Alice,	<i>Hinsdale, Ill.,</i>	1 Arts
Edwards, Margaret Whitbeck,	<i>Ithaca,</i>	4 Arts
Edwards, Olive Ruth,	<i>Forest Home,</i>	4 Arts
Eells, Dan Parmelee,	<i>Cleveland, O.,</i>	1 Arts
Efinger, Philip Charles,	<i>Lancaster, Pa.,</i>	1 Civil Eng.
Egbert, James Byron,	<i>Rosebank,</i>	2 Civil Eng.
Eggleston, Cary,	<i>New York City,</i>	2 Med. (N.Y.C.)
Eggleston, William Seymour,	<i>Ithaca,</i>	2 Veterinary
Ehrlich, Simon David,	<i>New York City,</i>	2 Med. (N.Y.C.)
Ehrlich, Stone Howard,	<i>New York City,</i>	1 Arts
Eichel, Henry,	<i>New York City,</i>	2 Med. (N.Y.C.)
Eisenberg, David,	<i>Long Island City,</i>	2 Med. (N.Y.C.)
Eisenbud, Adolph,	<i>New York City,</i>	2 Med. (N.Y.C.)
Eitel, Edmund Henry,	<i>Indianapolis, Ind.,</i>	2 Mech. Eng.
Elias, Kope, Jr., A.B.,	<i>Franklin, N. C.,</i>	Sp. Agriculture
Eldredge, Ralph Waldo,	<i>Sharon Springs,</i>	1 Arts
Eliasberg, Bernard,	<i>New York City,</i>	3 Med. (N. Y. C.)
Ellenbogen, Sidney Arthur,	<i>Paterson, N. J.,</i>	1 Mech. Eng.
Elliott, Mary Sibyl,	<i>Ithaca,</i>	Sp. Painting
Elliott, Ethel Freda,	<i>Etna,</i>	4 Arts

Elliott, John Earl, A.B.,	Hampton, Va.,	4 Civil Eng.
Elliott, Marion Winifred,	Ithaca,	4 Arts
Ellis, William Goodrich,	Owego,	Sr. Law
Ellsworth, Goodwin Davis, Jr.,	Washington, D. C.,	1 Civil Eng.
Ellsworth, Helen Adelaide,	New York City,	Sp. Agriculture
Ellyson, Douglas Walker,	Richmond, Va.,	4 Mech. Eng.
Elwood, Frank Edwin,	Scranton, Pa.,	2 Civil Eng.
Elwood, James Lawrence,	Rochester,	2 Mech. Eng.
Elwood, Lewis Jasper,	Starkville,	Sp. Agriculture
Elwood, Walter,	Amsterdam,	1 Arts
Embry, David Augustus,	Morrisville,	1 Arts
Embree, Clayton Jesse,	Chicago, Ill.,	4 Mech. Eng.
Emens, Warren Homer,	New Rochelle,	1 Arts
Emerson, Filip Law,	Detroit, Mich.,	4 Mech. Eng.
Engel, Irving Harold,	New York City,	3 Med. (N. Y. C.)
Engel, Joseph,	Newport, R. I.,	2 Med. (N. Y. C.)
Engelmann, Rosa, B.S., M.D.,	Chicago, Ill.,	Sp. Med. (N.Y.C.)
Engle, Clarence Frederick,	Montclair, N. J.,	1 Mech. Eng.
English, Andrew,	Van Etten,	3 Veterinary
English, George William,	New York City,	1 Mech. Eng.
Eno, Charles Rudd,	Pine Plains,	1 Veterinary
Eutwistle, Edward Fussell,	Johnstown, Pa.,	2 Mech. Eng.
Ertz Berger, Arthur Carson,	Albany,	4 Arts
Esmond, Nathan,	Valley Falls,	1 Mech. Eng.
Espenchedie, Fred Fairfax, Jr.,	Brooklyn,	4 Mech. Eng.
Essex, Harry,	Buffalo,	2 Arts
Estill, George Castleman, A.B.,	Lexington, Ky.,	2 Mech. Eng.
Evans, Chester Willard,	Ithaca,	2 Mech. Eng.
Evans, Edward Anthony,	Pittsburg, Pa.,	3 Civil Eng.
Evans, Frances Elizabeth,	Howell's Depot,	4 Arts
Evans, Gordon Maynard, B.S.,	New York City,	3 Mech. Eng.
Evans, Louis Humphreys,	Granville,	1 Civil Eng.
Evans, Morgan William,	Le Raysville, Pa.,	3 Agriculture
Evans, William Charles,	Talcottville, Conn.,	2 Medicine
Evans, Walter Hubert,	Salt Lake City, Utah,	3 Mech. Eng.
Eveland, Frank Winsor,	Jersey City, N. J.,	4 Mech. Eng.
Fabian, Francis Gordon,	Evanston, Ill.,	4 Mech Eng.
Fagundes, Adalberto Almada,	Sao Paulo, Brazil,	2 Veterinary
Fagundes, Lupercio,	Ithaca,	3 Agriculture
Fahr, George Edmeston, S.B.,	Meadville, Pa.,	4 Arts
Faile, Edward Hall,	St. Paul, Minn.,	3 Mech. Eng.
Failing, Brayton Earl,	Sherburne,	2 Medicine

Failey, Newton Cowan,	New York City,	2 Mech. Eng.
Fairbank, Harvey Clark, A.B.,	Jamestown,	4 Mech. Eng.
Fairlamb, Gertrude May, M.E.,	Media, Pa.,	Sp. Arts
Falkenau, Robert Morris,	Philadelphia, Pa.,	4 Mech. Eng.
Fancher, Eliza A.,	Albion,	4 Med. (N. Y. C.)
Farkas, Morris,	New York City,	1 Med. (N. Y. C.)
Farmer, Thomas, Jr.,	Cleveland, O.,	3 Mech. Eng.
Farnell, Frederic James,	Providence, R. I.,	1 Med. (N.Y.C.)
Farnsworth, Glendy,	Buffalo,	Sp. Agriculture
Farrior, James William, B.E.,	Kenansville, N. C.,	2 Mech. Eng.
Fausey, Jessie Redmona,	Philadelphia, Pa.,	4 Arts
Faust, Charlotte Clementine,	Brooklyn,	4 Arts
Faxon, Theodore Edmund, A.B.,	Elyria, O.,	Sr. Law
Fay, Lawrence Bradshaw,	Washington, D. C.,	3 Civil Eng.
Fechheimer, Carl Joseph,	Cincinnati, O.,	4 Mech. Eng.
Feeley, James Kerwin,	Rochester,	Jr. Law
Fehr, Louis White,	Rochester,	2 Arts
Feinberg, Abraham Wilfred,	Lake Placid,	Jr. Law
Feldman, George Joseph,	Buffalo,	1 Arts
Feldman, Isidor,	New York City,	3 Med. (N. Y. C.)
Fendrich, William, Jr., B.S.,	New York City,	3 Mech. Eng.
Fenger, Frederick Abildgaard,	Winnetka, Ill.,	2 Mech. Eng.
Fenno, George Francis, B.S.,	New York City,	3 Mech. Eng.
Ferguson, Arthur Edward,	Cedar Rapids, Ia.,	4 Mech. Eng.
Ferguson, John Alfred,	New York City,	2 Mech. Eng.
Ferguson, Lizzie May,	Salem,	4 Arts
Ferguson, Llewellyn Ray,	Buffalo,	1 Mech. Eng.
Ferguson, Mary Effie Van Everen,	Central Valley,	1 Agriculture
Fernow, Bernard Edward, Jr., A.B.,	Ithaca,	3 Mech. Eng.
Ferris, Ralph,	Ithaca,	2 Civil Eng.
Fessenden, Dewitt Harvey,	Ithaca,	Sp. Agriculture
Field, Allen Safford,	Watertown,	1 Arts
Figles, Harold Edward,	Ithaca,	1 Mech. Eng.
Filkins, Barent Latham,	Buffalo,	2 Mech. Eng.
Finkelstein, Max Jacob,	Elmira,	1 Law
Finch, Burtis J.,	Conklin,	2 Civil Eng.
Fischbein, Elias,	New York City,	4 Med. (N. Y. C.)
Fisher, Edward Adelbert,	Utica,	4 Civil Eng.
Fisher, James Powell,	Pittsburg, Pa.,	2 Mech. Eng.
Fisher, Jabez William,	Fitchburg, Mass.,	4 Mech. Eng.
Fisher, Mary Jones, A.B.,	Denton, Md.,	3 Arts
Fisk, Marion Walter,	Portland, Ore.,	2 Mech. Eng.

Fitch, Frances Elizabeth,	Buffalo,	2 Arts
Fitch, Francis Ellery, Jr.,	Elmira,	1 Mech. Eng.
Fitzhugh, Hugh,	Washington, D. C.,	3 Mech. Eng.
Fitzpatrick, Marion Aurelia,	Albany,	2 Arts
Fitz-Randolph, William Sheppard,	New Market, N. J.,	4 Civil Eng.
Fleck, Anthony George, A.B.,	Brooklyn,	1 Mech. Eng.
Fleming, Burton Percival, B.S.,	Logan, Utah,	3 Mech. Eng.
Fleming, Thomas, Jr., B.S.,	Washington, D. C.,	4 Civil Eng.
Fletcher, Ernest Sylvester,	Temple, Texas,	4 Mech. Eng.
Fletcher, Harold Morgan,	Buffalo,	Sp. Agriculture
Flickinger, Walter Eugene,	Erie, Pa.,	1 Mech. Eng.
Flint, Stanley Howard,	Wilkinsburg, Pa.,	1 Civil Eng.
Flood, James Douglas,	Chicago, Ill.,	3 Arts
Flynn, Charles Andrew,	Troy,	3 Mech. Eng.
Flynn, Edward James,	Johnstown,	1 Arts
Foard, Arthur Virdin,	Baltimore, Md.,	3 Civil Eng.
Focke, George Cleveland,	Galveston, Texas,	1 Agriculture
Fogarty, Anna Winifred,	Watervliet,	1 Arts
Folger, Paul,	Geneva,	3 Arts
Fonda, Cornelius Dockstader,	Fonda,	2 Arts
Foody, James Thomas,	Fultonville,	Jr. Law
Foote, Edward Thaddeus,	Ithaca,	3 Mech. Eng.
Foote, George Wilson,	Vineland, N. J.,	3 Mech. Eng.
Foote, Kenneth Moore,	Cleveland, O.,	1 Mech. Eng.
Foran, James Patrick,	Elmira,	2 Medicine
Forbes, Charles Banks,	New Rochelle,	1 Law
Forbes, William Henry,	Philadelphia, Pa.,	1 Mech. Eng.
Ford, Everett Leander,	Brooklyn,	2 Mech. Eng.
Ford, Robert Graham,	Bellewood, Pa.,	2 Civil Eng.
Forgy, John Edmonds,	Dayton, O.,	3 Mech. Eng.
Forshee, Isaac Christopher,	Willett,	4 Mech. Eng.
Foster, Dwight Eliot,	South Orange, N. J.,	Jr. Law
Foster, Franklin Luther,	Ithaca,	2 Veterinary
Foster, Harry Purrington,	Dalton, Mass.,	1 Mech. Eng.
Foster, Marcus Luculus, Jr.,	Gadsden, Ala.,	Sp. Mech. Eng.
Foster, Orrington Cyrenius,	Chicago, Ill.,	2 Mech. Eng.
Fountain, Thomas Lilly, B.S. in C.E.,	College Station, Tex.,	4 Civil Eng.
Fowler, Fred DuMont,	Ithaca,	2 Mech. Eng.
Fowler, Royale Hamilton,	Brooklyn,	2 Medicine
Fowler, William Dillon,	Salt Lake City, Utah,	1 Mech. Eng.
Fox, Albert Joseph,	Springville,	Jr. Law

Fox, Ernst Frederick,	Sr. Law
Fox, Frank William,	
Fox, George Leonard,	
Fox, Harry Davenport,	
Fox, Lester Alton,	
Fox, Seth William, Jr.,	
Fox, Walter S.,	
Francis, Samuel Edgar,	
Frank, Leo Max,	
Frank, Philip,	
Franklin, Albert Vergil,	
Frazee, Youle Townsend,	
Frear, Henry North,	
Frederickson, Augustus M.,	
Free, Edward Elway,	
Freedlander, Abraham Abbey,	
Freeman, William Bradly, B.C.E.,	
French, Harrison Otis,	
Frey, Harry Charles, A.B.,	
Fried, Jake,	
Friedman, Edward Louis,	
Friedrich, John Emil,	
Friend, Robert Elias,	
Fringer, Samuel Hall Tagart,	
Frink, Horace Westlake,	
Frink, Walter E.,	
Frisbie, Grandison Norton,	
Fritch, Robert Peter,	
Frizzell, Rex Russell,	
Frost, Harry Barber, B.S.,	
Frost, Howard Brett,	
Frost, James Nathan,	
Fuld, Horace,	
Fuller, Arthur Levi,	
Fuller, Lucius B.,	
Fuller, Mabel Eleanor,	
Fung, Hing Kwal,	
Furman, Fred John,	
Gable, Lowell Boyer,	
Gaby, Robert Edward, B.A.,	
Gaede, Henry Jules, LL.B.,	
Gaensslen, Carl August,	
Wolcott,	
Bayonne, N. J., 1 Med. (N. Y. C.)	
Bridgeport, Conn.,	1 Civil Eng.
Penn Yan,	1 Mech. Eng.
Buffalo,	2 Mech. Eng.
Brooklyn,	2 Mech. Eng.
La Port, Ind.,	4 Arts
Wilmington, Del.,	2 Mech. Eng.
Brooklyn,	3 Mech. Eng.
New York City, 2 Med. (N. Y. C.)	
Ithaca,	1 Arts
Montclair, N. J.,	2 Mech. Eng.
Buffalo,	1 Mech. Eng.
Cornwall-on-Hudson,	1 Law
Du Bois, Pa.,	3 Arts
Buffalo,	4 Arts
Bozeman, Mont.,	4 Civil Eng.
Honeoye Falls,	1 Veterinary
Olean,	Jr. Law
Vicksburg, Miss.,	2 Mech. Eng.
New York City, 3 Med. (N. Y. C.)	
New York City,	2 Mech. Eng.
Milwaukee, Wis.,	1 Mech. Eng.
Taneytown, Md.,	2 Mech. Eng.
Hillsdale,	4 Med. (N. Y. C.)
DeRuyter,	1 Veterinary
Middleburgh,	Sp. Law
Reading, Pa.,	4 Mech. Eng.
Great Falls, Mont.,	1 Arts
Providence, R. I.,	1 Mech. Eng.
Dairyland,	1 Agriculture
Buffalo,	1 Veterinary
New York City,	1 Arts
Marlboro Depot, N. H.,	4 Mech. Eng.
Telluride, Colo.,	2 Mech. Eng.
Homer,	2 Arts
Canton, China,	1 Agriculture
Rutland, Pa.,	3 Arts
Altoona, Pa.,	Sp. Agriculture
Toronto, Canada,	2 Medicine
Marlboro,	Sp. Law
Chicago, Ill.,	3 Mech. Eng.

Gaertner, Maurice Charles, Jr.,	<i>Wilkes-Barre, Pa.</i>	Sr. Law
Gage, Henry Phelps,	<i>Ithaca,</i>	1 Arts
Gage, Victor Raymond,	<i>Wilmette, Ill.</i>	1 Mech. Eng.
Gail, William Wallace,	<i>East Aurora,</i>	4 Arts
Galadjikian, Alexander Sarkis, A.B.,	<i>Constantinople, Turkey</i> , 1 Mech. Eng.	
Gallagher, Francis Edward,	<i>Salamanca,</i>	3 Arts
Gallagher, Francis Leo,	<i>Ithaca,</i>	1 Veterinary
Gallagher, John Sill,	<i>Saginaw, Mich.</i> ,	2 Arts
Gallagher, Joseph,	<i>Myers,</i>	2 Civil Eng.
Gallagher, William Henry, Jr.,	<i>Saginaw, Mich.</i> ,	3 Mech. Eng.
Gallagher, William Michael,	<i>Cleveland,</i>	1 Law
Gallaher, DeWitt Clinton, Jr.,	<i>Charleston, W. Va.</i> ,	3 Mech. Eng.
Galland, Julius George,	<i>Wilkes-Barre, Pa.</i> ,	1 Arts
Gannett, Ray Willard,	<i>Clifton Springs,</i>	3 Veterinary
Gannon, John Francis, A.B.,	<i>Providence, R. I.</i> , 4 Med. (N.Y.C.)	
Garabrant, Joseph Edwin,	<i>Bloomfield, N. J.</i> ,	3 Mech. Eng.
Garbat, Abraham Leon,	<i>New York City</i> , 3 Med. (N. Y. C.)	
Garbi, Louis, Jr.,	<i>New York City</i> ,	4 Civil Eng.
Gardner, Robert A.,	<i>Scranton, Pa.</i> ,	3 Arts
Garretson, Harry Douglas,	<i>Buffalo,</i>	4 Mech. Eng.
Garretson, Paul Oliver,	<i>Buffalo,</i>	1 Arts
Garrigan, Louis George,	<i>Newark, N. J.</i> ,	2 Mech. Eng.
Gaskill, Selora Alice,	<i>Wilson,</i>	3 Arts
Gaston, Edwards Pablo, A.B.,	<i>Habana, Cuba,</i>	2 Mech. Eng.
Gaston y Herrera, Luis,	<i>Habana, Cuba,</i>	1 Civil Eng.
Gates, Leroy Grant,	<i>Ithaca,</i>	1 Mech. Eng.
Gates, Lewis Harold,	<i>St. Paul, Minn.</i> ,	1 Mech. Eng.
Gauntlett, John McGraw,	<i>Ithaca,</i>	1 Mech. Eng.
Gavett, Leonard Whitney,	<i>Plainfield, N. J.</i> ,	1 Mech. Eng.
Gehr, Ray Stewart, Ph.B.,	<i>Washington, D. C.</i> , 3 Mech. Eng.	
Gehring, Victor Marshall,	<i>Portland, Me.</i> ,	2 Arts
Gelien, Johanna,	<i>Ithaca,</i>	1 Medicine
Geler, George Merrill, A.B.,	<i>Ebenezer,</i>	2 Med. (N. Y. C.)
Genung, George Leal,	<i>Waverly,</i>	4 Arts
Genung, Lewell T, A.B.,	<i>Worcester,</i>	4 Med. (N.Y.C.)
George, Emma Louise, Ped.B.,	<i>Flushing,</i>	Sp. Arts
George, Gilbert Gibson,	<i>Rockaway Beach,</i>	1 Mech. Eng.
George, Sidney Gonzales,	<i>Fredonia,</i>	4 Civil Eng.
Germann, Edward Henry,	<i>Brooklyn,</i>	4 Arts
Germann, Fred William,	<i>Brooklyn,</i>	4 Arts
Genson, Louis Jacob,	<i>Brooklyn,</i>	2 Mech. Eng.

Gerwig, Walter Henry,	Parkersburg, W. Va.,	2 Civil Eng.
Getty, Charles,	Hudson,	1 Civil Eng.
Gibbs, Roswell Clifton,	Ithaca,	2 Arts
Gibson, Edwin Thomas,	Brooklyn,	1 Law
Giele, Walter Scott,	Meadville, Pa.,	3 Mech. Eng.
Giesecke, Fred Otto Leopold,	Buffalo,	3 Mech. Eng.
Gilbert, Grace Russell,	Brooklyn,	1 Arts
Gilbert, Huntley Harris,	Chicago, Ill.,	2 Mech. Eng.
Gilbert, Walter Levi,	Durham,	1 Veterinary
Gilchrist, Jessie Lewis, M.P.,	Hazleton, Pa.,	3 Arts
Gilchrist, Thomas Byron,	Glens Falls,	Jr. Law
Gilchrist, William Bartow,	Cleveland, O.,	3 Mech. Eng.
Gilcreast, Webster Farnham,	Hazleton, Pa.,	1 Mech. Eng.
Gildner, Harry Holmes,	Newport News, Va.,	2 Mech. Eng.
Gildner, Laura May,	Newport News, Va.,	3 Arts
Giles, Irvin Kline,	Reading, Pa.,	3 Arts
Gilkeson, Roy Fenimore,	Worcester, Mass.,	Sr. Law
Gilkey, Royal,	Watertown, Mass.,	1 Agriculture
Gilleland, Pierre Hall,	Evanston, Ill.,	1 Mech. Eng.
Gillett, Horace Wadsworth,	Penn Yan,	3 Arts
Gillette, Arthur Taylor,	Cuba,	1 Medicine
Gillette, William DeWitt,	Mt. Vernon,	2 Mech. Eng.
Gillis, Hugh Lester,	Macedon,	3 Arts
Gilmore, Alvin Leroy,	Bath, Me.,	1 Civil Eng.
Giltner, Leigh,	Ithaca,	2 Veterinary
Giltner, Ward,	Ithaca,	2 Veterinary
Gilyard, Arthur Thomas,	Seymour, Conn.,	1 Veterinary
Ginorio, Francisco Ricardo, A.B.,	Arecibo, Porto Rico,	2 Mech. Eng.
Ginsburg, Benjamin,	New York City,	1 Med. (N.Y.C.)
Gleason, John Lawrence,	Union Springs,	Jr. Law
Glennie, Robert Douglas,	Sanborn,	1 Mech. Eng.
Glugoski, Arthur,	New York City,	1 Mech. Eng.
Godfrey, William Truitt,	City Island,	2 Medicine
Goehle, Otto Louis, A.B.,	Buffalo,	4 Med. (N. Y. C.)
Goepel, Frederick Narcis,	New York City,	2 Civil Eng.
Goetter, Edward Baldwin,	New York City,	3 Architecture
Goff, William Frederick,	Rochester,	1 Mech. Eng.
Goldberg, Albert Samuel,	Brooklyn,	1 Law
Goldblatt, Louis Leo,	New York City,	1 Med. (N.Y.C.)
Golding, Harry Newport,	Paterson, N.J.,	3 Med. (N. Y. C.)
Goldsmith, Gustave Mosler,	Cincinnati, O.,	2 Mech. Eng.
Goldstein, Isaac Montifor,	Milford, Ill.,	2 Mech. Eng.

Good, Eugene John,	New York City, 1 Med. (N. Y. C.)
Goodfried, Joseph,	New York City, 1 Med. (N.Y.C.)
Goodier, Chester Jennings,	Utica, 2 Mech. Eng.
Goodman, Timothy Seymour,	Hamilton, O., 1 Mech. Eng.
Goodnough, Frank Aurelian,	Belleview, Pa., 1 Law
Goodrich, Clarence Llewellyn,	Owego, 1 Civil Eng.
Goodrich, Clinton Raymond,	Minonk, Ill., 4 Civil Eng.
Goodrich, Joseph Edwards,	Glastonbury, Conn., 4 Arts
Goodrich, Leroy Rosengren,	Buffalo, 1 Arts
Goodspeed, Charles Barnett,	Columbus, O., 1 Mech. Eng.
Goodwillie, David Herrick,	Oak Park, Ill., 1 Mech. Eng.
Goodwin, Frank Perry,	Jamestown, 3 Med. (N.Y.C.)
Goodwin, Melvin Biggs,	Ithaca, 1 Arts
Goodwin, Philip James,	Kingston, Pa., 1 Mech. Eng.
Gootenberg, David,	New York City, 1 Med. (N.Y.C.)
Gordon, Charles Albert,	Brooklyn, 4 Med. (N. Y. C.)
Gordon, George Huntley, B.Sc.,	Kingston, Ont., Can., 4 Mech. E.
Gordon, Moses Burnes,	New York City, 1 Med. (N. Y. C.)
Gordon, Thomas Croxton, B.S.,	Richmond, Va., 3 Mech. Eng.
Gorrell, John Stacy,	Aikin, Md., 1 Mech. Eng.
Gouinlock, Agnes Gilchrist,	Warsaw, 1 Arts
Gouinlock, Jane,	Warsaw, 1 Arts
Gould, Carl Alvord,	Battle Creek, Mich., 1 Civil Eng.
Gould, Clarence Allen,	Seneca Falls, 1 Mech. Eng.
Gould, John Howard,	St. Marys, Ill., 3 Mech. Eng.
Gould, Lewis Arthur,	Interlaken, 1 Medicine
Gracy, Leonard Rider,	Jamaica, 1 Agriculture
Grady, Claude Henry,	Cuba, 4 Architecture
Graham, Edwin Merrill,	New York City, 1 Med. (N.Y.C.)
Graham, John Hersey,	Woodruff, Pa., 2 Architecture
Grant, Floyd Marshall,	Brasher Falls, 1 Law
Gratz, Nicholas Warfield,	Lexington, Ky., 1 Architecture
Graves, Gaylord Willis,	Ithaca, 4 Arts, 1 Medicine
Graves, Ralph Ireson,	Amesbury, Mass., 2 Mech. Eng.
Green, Henry Edward,	Hoosac, 3 Civil Eng.
Greenberg, Henry,	Brooklyn, 3 Arts
Greenberg, Max,	New York City, 4 Arts
Greene, Antoinette,	Troy, 3 Arts
Greene, Edna Lucy,	Fort Plain, 4 Arts
Greene, Harry Paul,	Brattleboro, Vt., 1 Medicine
Greenman, Charles Dwight,	Norwich, Conn., 1 Agriculture
Gregson, Edward Jesse, B.A.,	Newcastle, N. S. W., Aust., 3 M. E.

Greig, Julie Troward,	<i>Eldred,</i>	Sp. Arts
Greiner, Burt Henry,	<i>Dayton,</i>	Sr. Law
Gresham, Frank Spencer,	<i>Galveston, Tex.,</i>	2 Civil Eng.
Gridley, Sidney Dias,	<i>Elmira,</i>	1 Mech. Eng.
Griffin, Beasie May,	<i>Binghamton,</i>	2 Arts
Griffith, Lester Carman,	<i>Lynbrook,</i>	4 Agriculture
Grimley, John Goodwin Joseph,	<i>New York City,</i>	1 Med. (N.Y.C.)
Groesbeck, Harvey Paterson,	<i>Hoosick Falls,</i>	4 Med. (N.Y.C.)
Gross, Florence,	<i>Buffalo,</i>	1 Arts
Grubb, Howard Burlingham,	<i>South Croydon, England,</i>	Sp. Agr.
Grubb, Norman Henry,	<i>South Croydon, England,</i>	Sp. Agr.
Gruner, Clarence Elbert,	<i>Brooklyn,</i>	2 Civil. Eng.
Gruner, William Philip,	<i>St. Louis, Mo.,</i>	2 Mech. Eng.
Guenther, Victor John,	<i>Buffalo,</i>	2 Mech. Eng.
Gunnison, Marion,	<i>Erie, Pa.,</i>	1 Agriculture
Gurlov, Jacob,	<i>New York City,</i>	2 Med. (N. Y. C.)
Guss, Walter Granville,	<i>Washington, D. C.,</i>	4 Civil Eng.
Gwilliam, Clarence,	<i>Gloversville,</i>	1 Mech. Eng.
Gwinn, Charles Sumner,	<i>West Shokan,</i>	2 Arts
Haas, Celia Frances,	<i>Depauville,</i>	1 Arts
Hack, Earl Reside,	<i>Baltimore, Md.,</i>	1 Mech. Eng.
Hackney, Roscoe James,	<i>Indianapolis, Ind.,</i>	1 Mech. Eng.
Hackstaff, Frederick William,	<i>Brooklyn,</i>	4 Mech. Eng.
Hadley, Clarence George,	<i>Mumford,</i>	2 Mech. Eng.
Haefner, Carl William, Jr.,	<i>Elmira,</i>	4 Civil Eng.
Hagopian, Dicran Stepan, A.B.,	<i>Germir, Turkey,</i>	1 Medicine
Haight, George Stiener,	<i>Matteawan,</i>	1 Civil Eng.
Haight, Helena Harriet,	<i>Watkins,</i>	1 Arts
Haines, Charles Alvin, A.B.,	<i>Slatington, Pa.,</i>	1 Mech. Eng.
Haines, Charles Forman,	<i>Ithaca,</i>	1 Mech. Eng.
Haire, Andrew Joseph, Jr.,	<i>Derby, Conn.,</i>	4 Mech. Eng.
Hale, Rodgers,	<i>Towanda, Pa.,</i>	1 Mech. Eng.
Hale, Winfield,	<i>Los Angeles, Calif.,</i>	1 Agriculture
Hall, Arthur George,	<i>Verona,</i>	1 Veterinary
Halle, Jerome Norman,	<i>Cleveland, O.,</i>	1 Mech. Eng.
Halliday, Morris Samuel,	<i>Ithaca,</i>	Sr. Law
Hallock, William Nowlen,	<i>Bath,</i>	1 Law
Halloran, Harry Richmond,	<i>Queensland, Australia,</i>	3 Mech. Eng.
Halpin, James Garfield,	<i>Odessa,</i>	3 Agriculture
Halpin, Leo Aloysius,	<i>New York City,</i>	3 Med. (N. Y. C.)
Halsey, Hampton Howell,	<i>Ithaca,</i>	Jr. Law
Halstead, John Preston,	<i>Rome,</i>	1 Mech. Eng.

Hambiet, Mary Lucia, B.A.,	Salem, Mass.,	2 Medicine
Hamele, John Frederick,	East Otto,	1 Civil Eng.
Hamilton, Ethel Sedden,	Ben Avon, Pa.,	1 Arts
Hamilton, Floyd Linsley,	Knowlesville,	1 Mech. Eng.
Hamilton, Melancthon,	Cicero,	3 Veterinary
Hamilton, Paul Holland,	Braddock, Pa.,	1 Mech. Eng.
Hawlin, Harold Franklin,	Sharon, Conn.,	4 Civil Eng.
Hammar, Alfredo Gottlieb,	Killsberg, Sweden,	2 Agriculture
Hammel, Victor Frank,	Joliet, Ill.,	2 Civil Eng.
Hammond, Frances Belle,	Belfast,	2 Arts
Hammond, Robert Bertine,	So. Millbrook,	3 Med. (N.Y.C.)
Hanauer, Girard,	Ithaca,	Sp. Agriculture
Hanigan, Belle,	Alplaus,	3 Arts
Hanley, John Patrick,	Stafford Springs, Conn.,	3 Med. (N.Y.C.)
Hann, Arthur Edward,	Summit, N.J.,	4 Architecture
Hanna, Walter Jacob,	Berkeley, Calif.,	1 Civil Eng.
Hannan, David Edward,	Chicago, Ill.,	3 Civil Eng.
Hannon, William Weatherly,	Montgomery, Ala.,	Sp. Architecture
Hanson, Frank Le Roy,	Windsor,	1 Civil Eng.
Hanson, George Charles,	Bridgeport, Conn.,	1 Civil Eng.
Hapgood, William,	Warren, O.,	1 Mech. Eng.
Harding, Claude Corydon,	Wellsboro, Pa.,	1 Agriculture
Harding, Harry E.,	Hume,	4 Arts
Harger, Wilson Gardner,	Rochester,	4 Civil Eng.
Harkness, Andrew Marr,	Pittston, Pa.,	2 Mech. Eng.
Harnden, Frank,	Brooklyn,	2 Med. (N. Y. C.)
Harpending, Pierre,	Dundee,	4 Arts
Harper, Francis,	College Point,	2 Arts
Harries, William Edward,	Buffalo,	1 Agriculture
Harrington, Arthur Melvin,	Germantown, Phila., Pa.,	4 Mech. Eng.
Harris, Charles William, B.S.,	Boisfort, Wash.,	4 Civil Eng.
Harris, Leon,	Brooklyn,	1 Med. (N. Y. C.)
Harris, Mitchell,	Hornellsville,	4 Arts
Harris, Sadie,	Ithaca,	4 Arts
Harris, William John, Jr.,	St. Louis, Mo.,	4 Mech. Eng.
Harrison, Harry,	New York City,	1 Mech. Eng.
Harrison, Howard Griswold,	Addison,	2 Civil Eng.
Harrison, Ross Ray,	Washington, D. C.,	1 Civil Eng.
Harrison, William Taylor,	Buffalo,	2 Mech. Eng.
Hart, Carlos Dempster,	Turin,	3 Mech. Eng.
Hart, Harold Leslie, A.B.,	Ithaca,	Jr. Law
Hart, Haynes Lloyd,	Auburn,	2 Mech. Eng.

Hartigan, Irving Cress,	<i>Manila, P. I.,</i>	1 Mech. Eng.
Hartigan, William Edward,	<i>Norwich,</i>	1 Medicine
Hartley, Chester Arthur,	<i>Gouverneur,</i>	Sp. Agriculture
Hartung, Marion John,	<i>Wyckoff, N. J.,</i>	1 Mech. Eng.
Hartwig, Max,	<i>Buffalo,</i>	4 Mech. Eng.
Hartzell, Cyrus King,	<i>Pittsburg, Pa.,</i>	1 Mech. Eng.
Hartzell, Donald Whiting,	<i>Canton, O.,</i>	1 Mech. Eng.
Hasbrouck, Joseph Edwin, Jr.,	<i>Modena,</i>	Sp. Agriculture
Haskell, Edward Llewellyn,	<i>Oneida,</i>	1 Law
Haskell, Frank Edward,	<i>Holyoke, Mass.,</i>	3 Mech. Eng.
Hassett, Thomas Joseph,	<i>Fishkill-on-Hudson,</i>	Jr. Law
Hastings, Edwin Hamilton, Jr.,	<i>Homer,</i>	1 Arts
Hastings, Louise Parmalee,	<i>Homer,</i>	2 Arts
Hatch, Charles Collins,	<i>Cleveland, O.,</i>	1 Mech. Eng.
Hatfield, Hazel May,	<i>Newark, N. J.,</i>	4 Arts, 2 Medicine
Hathaway, Henry Mona,	<i>Seattle, Wash.,</i>	1 Civil Eng.
Haug, Frederick William,	<i>New York City,</i>	1 Mech. Eng.
Haupt, Max,	<i>Homestead, Pa.,</i>	3 Civil Eng.
Hawkins, Bronson Hiram,	<i>Syracuse,</i>	Sp. Agriculture
Hawkins, Frank,	<i>Hamden Jct.,</i>	4 Arts
Hays, Donald Symington,	<i>Baltimore, Md.,</i>	3 Mech. Eng.
Hazel, Walter Theodore,	<i>Philadelphia, Pa.,</i>	1 Civil Eng.
Heater, Nelson Raymond,	<i>Waterbury, Conn.,</i>	Jr. Law
Heath, Sydney Lester,	<i>Shortsville,</i>	4 Arts
Hechheimer, Herbert,	<i>Baltimore, Md.,</i>	3 Mech. Eng.
Hecht, Jerome Montefiore,	<i>Rochester,</i>	1 Mech. Eng.
Heggem, Chalmier Raymond, L.L.B.,	<i>Massillon, O.,</i>	2 Arts
Heilman, Fred Lee,	<i>Greenville, Pa.,</i>	1 Civil Eng.
Heim, John Alfred,	<i>New York City,</i>	4 Med. (N. Y. C.)
Heine, Henry Anton,	<i>Washington, D. C.,</i>	1 Mech. Eng.
Heist, Lee Harrar,	<i>Ebensburg, Pa.,</i>	3 Mech. Eng.
Heizmann, Lewis Joseph,	<i>Reading, Pa.,</i>	3 Mech. Eng.
Heller, William Benjamin,	<i>New York City,</i>	1 Arts
Hemingway, Gertrude Louise,	<i>Troy,</i>	2 Arts
Hemingway, John Carlisle,	<i>Washington, D. C.,</i>	1 Mech. Eng.
Hench, Jay Lyman,	<i>Hinsdale, Ill.,</i>	1 Arts
Henderer, Willard Everett,	<i>Wilmington, Del.,</i>	1 Mech. Eng.
Henderson, Nellie Mae,	<i>Norwich, Conn.,</i>	1 Arts
Henderson, Robert Moss, Jr.,	<i>Montgomery, Ala.,</i>	1 Arts
Henderson, Thomas Richard,	<i>Philadelphia, Pa.,</i>	2 Civil Eng.
Hendrickson, Everett House,	<i>Brooklyn,</i>	3 Mech. Eng.
Henriksen, Martha Kaspara,	<i>Brooklyn,</i>	1 Arts

Henry, Hugh Price,	<i>Eau Claire, Wis.,</i>	Sr. Law
Henry, William James,	<i>Wayne, Pa.,</i>	1 Civil Eng.
Hequembourg, Louis Max,	<i>Dunkirk,</i>	1 Civil Eng.
Herder, Cherrie Marie,	<i>Brooklyn,</i>	4 Arts
Herdman, William James,	<i>Jerseyville, Ill.,</i>	1 Mech. Eng.
Herpel, Harry Conrad,	<i>Reynoldsville, Pa.,</i>	1 Mech. Eng.
Herr, Benjamin Musser,	<i>Lancaster, Pa.,</i>	2 Mech. Eng.
Herr, Frederick John,	<i>Brooklyn,</i>	2 Civil Eng.
Herrick, John Rutherford, A.B.,	<i>Peekskill,</i>	4 Med. (N. Y. C.)
Herrick, Seymour Morton,	<i>Matanzas, Cuba,</i>	3 Agriculture
Herriman, Victor Doraval,	<i>Brooklyn,</i>	1 Mech. Eng.
Herron, Wallace Wood,	<i>Westfield,</i>	2 Veterinary
Herwig, George Daniel,	<i>Pittsburg, Pa.,</i>	1 Civil Eng.
Hess, Walter,	<i>New York City,</i>	2 Medicine
Hewitt, Carl Thompson,	<i>Gouverneur,</i>	1 Mech. Eng.
Hewitt, John Marshall,	<i>Marianna, Ark.,</i>	2 Mech. Eng.
Hewson, Hugh Moore,	<i>Niagara Falls,</i>	Sr. Law
Hickman, Frances,	<i>Buffalo,</i>	1 Arts
Hickman, Spencer Eastman,	<i>Buffalo,</i>	4 Mech. Eng.
Hickstein, William Lux,	<i>Auburn,</i>	2 Mech. Eng.
Hiett, Ralph Waldo,	<i>Toledo, O.,</i>	1 Mech. Eng.
Higgins, Max Smith,	<i>Cortland,</i>	3 Mech. Eng.
Highland, Caswell,	<i>Niagara Falls,</i>	1 Mech. Eng.
Hilborn, William Harrison,	<i>Jasper,</i>	1 Civil Eng.
Hildebrant, Bertram Augustus,	<i>Ithaca,</i>	2 Mech. Eng.
Hill, Benjamin Mason,	<i>Petersburg, Va.,</i>	2 Mech. Eng.
Hill, James DeWitt, Jr.,	<i>Scottsdale, Pa.,</i>	2 Mech. Eng.
Hillebrand, William Arthur,	<i>Washington, D. C.,</i>	4 Arts
Hillenbrand, Frederick Louis,	<i>New York City, Sp. Med. (N.Y.C.)</i>	Jr. Law
Hiller, Francis Hemperley, A.B.,	<i>Cobleskill,</i>	
Hillman, Sidney Maurice,	<i>New York City,</i>	2 Mech. Eng.
Hills, Harry Clark,	<i>Youngstown, O.,</i>	1 Law
Hills, John Vernon,	<i>Vernon,</i>	2 Veterinary
Hills, Rollin,	<i>Brooklyn,</i>	4 Med. (N. Y. C.)
Hilmer, Otto Ernst,	<i>Brooklyn,</i>	2 Mech. Eng.
Hiltebrant, Oscar Raymond,	<i>Kingston,</i>	2 Mech. Eng.
Hine, Dora Frances,	<i>Bay City, Mich.,</i>	2 Arts
Hinton, Hammond Herbert,	<i>Lumberton, Miss.,</i>	1 Mech. Eng.
Hinz, William,	<i>New York City,</i>	4 Med. (N. Y. C.)
Hitchcock, Joseph Fithian,	<i>Philadelphia, Pa.,</i>	2 Mech. Eng.
Hoag, Arthur Edmond,	<i>Millerton,</i>	1 Med. (N. Y. C.)
Hoard, Prescott Dygert,	<i>Ithaca,</i>	4 Civil Eng.

Hobart, Earle Tisdale,	Brookline, Mass.,	1 Mech. Eng.
Hoch, George Francis,	Newark, N. J.,	2 Medicine
Hochbaum, Hans Weller,	Chicago, Ill.,	1 Agriculture
Hocker, Mervyn J.,	Highspire, Pa.,	1 Mech. Eng.
Hockridge, Walter Longmire,	St. Remy,	Sp. Agriculture
Hocson, Felix, B.A.,	Manila, P. I.,	Sp. Agriculture
Hodge, James Thacher,	Cincinnati, O.,	1 Civil Eng.
Hodge, Thomas Ditto,	Henderson, Ky.,	1 Mech. Eng.
Hodge, William Washington,	Philadelphia, Pa.,	4 Mech. Eng.
Hoenig, Edward,	New York City, 1 Med. (N. Y. C.)	
Hoffman, Albert Baldwin,	New York City,	1 Mech. Eng.
Hoffman, Florentine Milton,	New Brunswick, N. J., 1 Med. (N.Y.C.)	
Hoffman, Richard,	New York City,	1 Med. (N. Y. C.)
Hofier, Leonard Franklin,	Brooklyn,	1 Med. (N. Y. C.)
Hogan, Joseph Vincent,	Watertown,	1 Civil Eng.
Hogan, William Edward,	Bridgeport, Conn.,	3 Mech. Eng.
Hoge, Joseph Franklin Dix,	Baltimore, Md.,	3 Mech. Eng.
Hoge, Lewis Clark,	Hamilton, Va.,	1 Agriculture
Hoge, Philip Barlow,	Washington, D. C.,	2 Civil Eng.
Hohner, Edwin,	Buffalo,	3 Mech. Eng.
Holbert, Emma Alice,	Ellenville,	1 Arts
Holcomb, Frank Collins,	Albion,	Sp. Agriculture
Hollaender, Samuel,	New York City,	3 Med. (N.Y.C.)
Hollands, Stephen Charles,	Hornellsville,	1 Mech. Eng.
Hollenbeck, Brua Arnot,	Ithaca,	1 Mech. Eng.
Hollenbeck, Harry Bell,	Avon,	2 Mech. Eng.
Holliday, Wallace Trevor,	Cleveland, O.,	4 Arts
Holloway, Arthur Power,	Montclair, N. J.,	2 Civil Eng.
Holloway, Roger Tiffet,	Montclair, N. J.,	1 Civil Eng.
Holman, Webster Palmer,	Sergeants Bluff, Ia.,	4 Mech. Eng.
Holmes, Edward,	Washington, D. C.,	4 Civil Eng.
Holmes, Henry Everett,	Troy,	3 Arts
Holmes, Howard Abbott,	Ithaca,	1 Mech. Eng.
Holmes, Iva May,	Gouverneur,	2 Arts
Holmes, Webster Balkwill,	Cincinnati, O.,	1 Mech. Eng.
Holt, John Washburn,	Cleveland, O.,	1 Mech. Eng.
Holton, Edward Newton,	Montclair, N. J.,	3 Agriculture
Holzheimer, Gerald Lee,	Elmira,	1 Mech. Eng.
Hoobler, Bert Raymond; B.S.,	Saginaw, Mich.,	4 Med. (N.Y.C.)
Hook, Warren Howard,	Ithaca,	1 Mech. Eng.
Hooker, Albert Gerard,	Falconer,	1 Law
Hooker, Katharine Jane,	Ithaca,	1 Arts

Hooper, Franklyn Dana,	Brooklyn,	1 Mech. Eng.
Hoover, Donald Dinsmore,	Wellsville, Pa.,	4 Arts
Hopkins, Richard Thomas,	Flushing,	1 Med. (N. Y. C.)
Hopper, Elizabeth Gladys,	Ithaca,	1 Arts
Hopper, Walter Everett,	Newark, N. J.,	1 Arts
Hoppin, Frederick Layton,	Buffalo,	3 Mech. Eng.
Hoppin, John Keene,	Buffalo,	3 Mech. Eng.
Hopple, William Hanna,	Cincinnati, O.,	3 Arts
Horn, Stanley Granger,	Brooklyn,	4 Arts
Horstman, August George,	Brooklyn,	3 Med. (N.Y.C.)
Horton, Clarence George,	Wolcott,	Jr. Law
Horton, Harvey Starring,	Silver Creek,	3 Architecture
Horwitt, Solomon,	New York City,	2 Med. (N. Y. C.)
Horwood, John Wesley,	Hoboken, N. J.,	2 Arts
Hoshino Junkich,	Osaka, Japan,	1 Mech. Eng.
Hoskot, Ralph Elwood,	Dayton, O.,	Sr. Law
Howard, Dudley Russell,	Ogdensburg,	1 Law
Howard, Mayme S.,	Franklinville,	1 Arts
Howard, Nelson Webster,	Ogdensburg,	2 Mech. Eng.
Howard, Otis Woolworth,	Omaha, Nebr.,	1 Mech. Eng.
Howe, Arthur John Perry,	Montclair, N. J.,	2 Med. (N. Y. C.)
Howe, James McKechnie Lawrence,	Canandaigua,	1 Mech. Eng.
Howe, Lucy,	Memphis,	3 Arts
Howe, Ralph Wilson,	South Salem,	1 Mech. Eng.
Howes, Alfred Pettis, Jr.,	Utica,	2 Arts
Howland, Clarence Otis,	Geneva,	3 Mech. Eng.
Hoyt, Frank Watson,	Peckville, Pa.,	1 Mech. Eng.
Huber, William Thomas,	Buffalo,	1 Civil Eng.
Hubbell, Hiram Gaylord,	Stamford,	3 Med. (N. Y. C.)
Hubbell, Reed Hamilton,	Saginaw, Mich.,	2 Mech. Eng.
Hudson, Neal Morehouse,	Weedsport,	3 Mech. Eng.
Huestis, Edna Frances,	Troy,	2 Painting
Hughes, Charles Reginald,	Frederick, Md.,	3 Civil Eng.
Hull, Emmett Johnston,	Jackson, Miss.,	Sp. Architecture
Hume, Fred, B.A.,	Nashville, Tenn.,	4 Mech. Eng.
Humphrey, Charles Scranton,	West New Brighton,	1 Arts
Humphrey, William Erwin, Jr.,	Livonia,	1 Mech. Eng.
Humphreys, Albert Francis,	Ludlowville,	2 Arts
Humpstone, Harold Dunmore,	Brooklyn,	1 Mech. Eng.
Hungerford, Jay Clark,	Ithaca,	4 Agriculture
Hunn, Chester Jermain,	Ithaca,	1 Agriculture
Hunt, Andrew Dickson,	New York City,	3 Mech. Eng.

Hunt, Guy Hildebrand,	Washington, D. C.,	1 Civil Eng.
Hunter, Charles Welsh,	Baltimore, Md.,	4 Mech. Eng.
Hurlbut, John,	Ithaca,	4 Mech. Eng.
Hurley, John Patrick,	Lenox, Mass.,	2 Civil Eng.
Husted, Clifford Mackay,	Buffalo,	1 Mech. Eng.
Hustis, Roland Ludington,	Milwaukee, Wis.,	2 Mech. Eng.
Hutchins, Carleton Brown,	Chicago, Ill.,	1 Law
Hutchinson, Harold John,	Dryden,	1 Arts
Hutchison, James Hervey,	Elkview, Pa.,	3 Civil Eng.
Hutson, Arthur Cary, B.S.,	College Station, Tex.,	1 Civil Eng.
Hutton, Robert Leroy, A.B.,	Ridgewood, N. J.,	4 Med. (N. Y. C.)
Hyde, Roger Davies,	Ithaca,	1 Veterinary
Ingall, Oswald Drew,	Montclair, N. J.,	2 Arts
Ingalls, John Conrad,	Phelps,	1 Civil Eng.
Ingham, Florence Dora,	Ithaca,	4 Arts
Irish, Frederic Joseph,	Patterson,	3 Civil Eng.
Irvine, Pierpont Edward, A.B.,	Wellsville, W. Va.,	1 Mech. Eng.
Isaacs, Harry Ezekiel,	West Hoboken, N. J.,	4 Med. (N.Y.C.)
Israelowitz, Otto,	Newark, N. J.,	1 Med. (N.Y.C.)
Jablons, Benjamin,	New York City,	1 Med. (N.Y.C.)
Jack, Marvin,	Lewiston,	1 Agriculture
Jackson, Edwin Ruthven,	Syracuse,	1 Veterinary
Jackson, Herbert Spencer,	Ithaca,	4 Arts
Jackson, Thomas Marshall,	Kennett Square, Pa.,	1 Mech. Eng.
Jacoby, Hurlbut Smith,	Ithaca,	1 Arts
Jacoby, John Vincent,	Ithaca,	2 Arts
Jahn, Gustave Adolph, Jr.,	Brooklyn,	1 Mech. Eng.
Janes, Edward Allyn,	Plainfield, N. J.,	2 Arts
Jansen, Edward Walter,	New York City,	1 Mech. Eng.
Jarrett, Ethel Lacey,	Brooklyn,	1 Arts
Jenkins, David,	Dover, N. J.,	2 Arts
Jenkins, Minnie,	Walton,	2 Agriculture
Jenkinson, Richard Dale,	Bellevue, Pa.,	2 Civil Eng.
Jenks, Laban Sheldon,	Portland,	Jr. Law
Jennings, Henry,	Southold,	Sp. Agriculture
Jesser, Edward Arthur,	Richmond Hill,	1 Arts
Jessup, George Penney,	Quogue,	1 Mech. Eng.
Jewell, Charles Gordon,	Seneca Falls,	3 Mech. Eng.
Jewell, Marion Disney,	Schenectady,	1 Arts
Joerger, William Pettus,	Brooklyn,	2 Arts
Johnson, Bruce Smith,	McGraw,	1 Civil Eng.
Johnson, Carlton Perry,	Brooklyn,	2 Arts

Johnson, Charles Sutherland,	<i>Halifax, N. S., Canada,</i>	1 Civil Eng.
Johnson, Chesley Heath,	<i>Babylon,</i>	2 Mech. Eng.
Johnson, Edith Eugenie,	<i>Palo Alto, Calif.,</i>	2 Medicine
Johnson, Elisha Martin,	<i>Olean,</i>	1 Mech. Eng.
Johnson, Eugene Cooper,	<i>Ithaca,</i>	4 Civil Eng.
Johnson, Frances Ethel,	<i>Binghamton,</i>	4 Arts
Johnson, Fred,	<i>Westfield,</i>	1 Agriculture
Johnson, George Friedman,	<i>Albany,</i>	1 Mech. Eng.
Johnson, George Tewksbury,	<i>Portsmouth, O.,</i>	3 Mech. Eng.
Johnson, Harvey Fletcher,	<i>Ithaca,</i>	3 Mech. Eng.
Johnson, Henry Langley,	<i>Boston, Mass.,</i>	1 Arts
Johnson, Howard White, B.S.,	<i>Chicago, Ill.,</i>	1 Mech. Eng.
Johnson, John Arthur,	<i>North Gage,</i>	2 Veterinary
Johnson, Leon Arthur,	<i>Walton,</i>	Sp. Agriculture
Johnson, Lindley Wilkeson,	<i>Youngstown,</i>	3 Agriculture
Johnson, Marcus Rodney,	<i>Erie, Pa.,</i>	1 Mech. Eng.
Johnson, Milton John,	<i>Jamestown,</i>	3 Med. (N. Y. C.)
Johnson, Nathan Clarke,	<i>Pittston, Pa.,</i>	1 Mech. Eng.
Johnson, Mrs. S Albert,	<i>Mansfield, Pa.,</i>	Sp. Arts
Johnston, Charles Watkins,	<i>Brooklyn,</i>	1 Mech. Eng.
Johnston, Robert Marsh,	<i>Muncie, Ind.,</i>	4 Mech. Eng.
Johnston, William Rendell, Jr.,	<i>East Orange, N. J.,</i>	4 Civil Eng.
Jones, Alfred Harrison,	<i>Ithaca,</i>	3 Arts
Jones, Arthur Locke,	<i>Buffalo,</i>	3 Mech. Eng.
Jones, Bevan,	<i>New York City,</i>	3 Civil Eng.
Jones, Charles Emerson, Jr.,	<i>Hartford, Conn.,</i>	1 Med. (N.Y.C.)
Jones, Elliot Penrose,	<i>West Chester, Pa.,</i>	1 Civil Eng.
Jones, Ernest Wilbur,	<i>Pike,</i>	2 Mech. Eng.
Jones, Henry Roger,	<i>New Hartford, Conn.,</i>	Jr. Law
Jones, Howard Stanley,	<i>Buffalo,</i>	1 Law
Jones, Ira Owen,	<i>Chicago, Ill.,</i>	3 Mech. Eng.
Jones, Isaac Seeley,	<i>Relay, Md.,</i>	2 Mech. Eng.
Jones, John Lucien,	<i>Buffalo,</i>	3 Mech. Eng.
Jones, Milton Pratt,	<i>Deerfield,</i>	1 Agriculture
Jones, Raymond Watson,	<i>Albany,</i>	4 Arts
Jones, Ruth Martin,	<i>Williamsport, Pa.,</i>	2 Arts
Jones, Stanley Robert,	<i>Ithaca,</i>	2 Civil Eng.
Joralemon, Fred Eugene,	<i>Niagara Falls,</i>	1 Law
Joseph, David,	<i>New York City,</i>	1 Med. (N.Y.C.)
Joseph, John Arthur,	<i>Wilkes-Barre, Pa.,</i>	1 Mech. Eng.
Josephy, Alvin,	<i>New York City,</i>	1 Mech. Eng.
Joshi, Lemuel Lucas, B.Sc.,	<i>Bombay, India,</i>	2 Med. (N. Y. C.)

Joslyn, Raymund Elbert,	<i>Jersey City Heights, N.J.</i>	4 Mech. Eng.
Joslyn, Royal Cuthbert,	<i>Jersey City Heights, N.J.</i>	3 Civil Eng.
Judd, Caroline Whallon,	<i>Port Henry,</i>	3 Arts
Judson, David Henry,	<i>Oswego,</i>	2 Civil Eng.
Justin, Joel DeWitt,	<i>Rochester,</i>	3 Civil. Eng.
Kahanowitz, Samuel,	<i>Greensburg, Pa.,</i>	2 Mech. Eng.
Kanouse, George Edward,	<i>Hackettstown, N.J.,</i>	1 Med. (N.Y.C.)
Kaufhold, Frank,	<i>Newark, N.J.,</i>	3 Med. (N.Y.C.)
Kearns, Rose Pomeroy,	<i>Forestville,</i>	1 Agriculture
Kearns, Thomas Joseph, B.A.,	<i>Manchester, N.H.,</i>	3 Med. (N.Y.C.)
Keeler, George Greene,	<i>Chicago, Ill.,</i>	1 Mech. Eng.
Keenan, James Nicholas Joseph,	<i>Brooklyn,</i>	1 Mech. Eng.
Keeney, Robert Matison,	<i>Belvidere,</i>	1 Civil Eng.
Keet, Ernest Ellsworth,	<i>Saranac Lake,</i>	2 Medicine
Kehoe, Harry,	<i>Oswego,</i>	1 Civil Eng.
Keil, Frank Conrad,	<i>New York City,</i>	2 Med. (N.Y.C.)
Keith, Arthur Raymond,	<i>Oakland, Calif.,</i>	1 Veterinary
Keith, Arthur Rubel,	<i>Rome,</i>	2 Medicine
Keller, Arthur Emil,	<i>Cleveland, O.,</i>	Sp. Architecture
Kelleran, Charles Russell,	<i>Buffalo,</i>	Sr. Law
Kelley, Charles Earl, A.B.,	<i>Dayton, O.,</i>	Sr. Law
Kelley, Elias Heatman,	<i>Dayton, O.,</i>	Sr. Law
Kelley, Manley Spencer, Jr.,	<i>Jamestown,</i>	3 Arts
Kellogg, George Davis,	<i>Greenwood,</i>	1 Civil Eng.
Kellogg, James Gifford,	<i>Chicago, Ill.,</i>	2 Mech. Eng.
Kelly, Ernest,	<i>Washington, D.C.,</i>	Sp. Agriculture
Kelly, James Bernard,	<i>Scranton, Pa.,</i>	4 Mech. Eng.
Kelly, James Lewis,	<i>Porterville,</i>	Jr. Law
Kelly, John Francis,	<i>Scranton, Pa.,</i>	1 Arts
Kelsey, Dean Lewis,	<i>No. Tonawanda,</i>	1 Arts
Kelsey, Earl Hewes,	<i>No. Tonawanda,</i>	4 Arts
Kelsey, Ernest Westervelt,	<i>Ithaca,</i>	Sr. Law
Kelsey, Weston Maynard,	<i>Salamanca,</i>	4 Arts
Kemp, Maurice,	<i>Catasauqua, Pa.,</i>	2 Med. (N.Y.C.)
Kendrick, William Dixon,	<i>Montgomery, Ala.,</i>	1 Mech. Eng.
Kennedy, Alexander, Jr.,	<i>Pittsfield, Mass.,</i>	2 Mech. Eng.
Kennedy, John Curtis,	<i>Buffalo,</i>	2 Arts
Kennedy, Mary Anne,	<i>Warrensburg, Mo.,</i>	Sp. Arts
Kennedy, Walter Critchlow,	<i>New Brighton, Pa.,</i>	2 Mech. Eng.
Kenneweg, Albert Henry,	<i>Cumberland, Md.,</i>	1 Mech. Eng.
Kent, Henry Thomas, Jr.,	<i>Clifton Heights, Pa.,</i>	1 Arts
Kent, Ralph Sherlock, A.B.,	<i>Ithaca,</i>	Sr. Law

Kenyon, Benjamin,	<i>Scipio,</i>	1 Law
Kercheval, Robert Forsyth, B.A.,	<i>Lane, Idaho,</i>	1 Mech. Eng.
Kernan, Nicholas Edward, A.B.,	<i>Utica,</i>	Jr. Law
Kerr, Edith,	<i>Titusville, Pa.,</i>	3 Arts
Kerr, Eleanor,	<i>Dougan Hills,</i>	2 Painting
Kerr, William Murray,	<i>New York City, 4 Med. (N. Y. C.)</i>	
Kessler, Armin George,	<i>Oswego,</i>	1 Mech. Eng.
Ketcham, Harry Burton,	<i>Middletown,</i>	4 Mech. Eng.
Kettle, William Walter,	<i>New York City, 1 Med. (N.Y.C.)</i>	
Kice, Luther Holden,	<i>Wharton, N. J.,</i>	1 Med. (N.Y.C.)
Kiendl, Adolph Cornelius,	<i>Brooklyn,</i>	1 Arts
Kiep, Adeline Carrie,	<i>Brooklyn,</i>	4 Arts
Kieselbach, Oswald,	<i>Mendota, Ill.,</i>	1 Law
Kilburn, Edward Douglas,	<i>Malone,</i>	2 Mech. Eng.
Kimball, Clarence,	<i>Passaic, N. J.,</i>	2 Arts
Kinavan, Josette Marie,	<i>Brooklyn,</i>	4 Arts
King, Alvin Ward,	<i>Takoma Park, D. C.,</i>	2 Civil Eng.
King, Burt Morrow,	<i>White Bear Lake, Minn.,</i>	1 Law
King, Harry Swayne,	<i>Toledo, O.,</i>	3 Arts
King, Tertullus Harrison, Jr.,	<i>Trumansburg,</i>	Sp. Agriculture
King, Walter Edwards, A.B.,	<i>Kinsman, O.,</i>	2 Medicine
Kingsbury, Herbert Willard,	<i>Scottsville,</i>	1 Arts
Kinnear, Eugene Carner,	<i>Washington, D. C.,</i>	2 Civil Eng.
Kinney, Grace Eleanor,	<i>Snowdon,</i>	1 Arts
Kinney, Price Witter,	<i>Lyons,</i>	3 Mech. Eng.
Kinsman, Cyrus Hillman	<i>Plainfield, N. J.,</i>	4 Mech. Eng.
Kipp, Ralph,	<i>Lexington,</i>	1 Med. (N.Y.C.)
Kirchhofer, Melville Peter Lewis,	<i>Massillon, O.,</i>	Jr. Law
Kirchner, Anna Elsa,	<i>Philadelphia, Pa.,</i>	3 Arts
Kirk, William Andrew Anderson,	<i>Gouverneur,</i>	2 Arts
Kirkland, Bert Persons,	<i>Silver Creek,</i>	4 Arts
Kissel, Jacob,	<i>Brooklyn,</i>	3 Med. (N. Y. C.)
Kissick, Joseph, Jr.,	<i>New York City,</i>	3 Mech. Eng.
Kitchel, Stanley,	<i>Milwaukee, Wis.,</i>	1 Mech. Eng.
Kleber, John James,	<i>New York City,</i>	4 Civil Eng.
Klein, John H.,	<i>Buffalo,</i>	Jr. Law
Klein, Morris James,	<i>New York City, 4 Med. (N. Y. C.)</i>	
Klepisch, George Hugo Otto,	<i>New York City,</i>	2 Mech. Eng.
Kline, Daniel Davold,	<i>Williamsport, Pa.,</i>	Jr. Law
Kling, Herbert Allen,	<i>Woodbine, Iowa,</i>	2 Mech. Eng.
Klock, Nellie Adah,	<i>St. Johnsville,</i>	3 Arts
Knapp, Arthur,	<i>Ardmore, Pa.,</i>	2 Mech. Eng.

Knemeyer, William Henry,	Brooklyn,	1 Architecture
Knibloe, Laurence,	Buffalo,	2 Arts
Knight, Ralph Floyd,	Machias,	1 Veterinary
Knight, Theodore Cowles,	Buffalo,	1 Mech. Eng.
Knowles, Paul,	Avon,	1 Medicine
Knowlson, James Somerville, 2nd,	Western Springs, Ill.,	4 Mech. Eng.
Knowlton, Orin Henry,	Perrysburg,	Jr. Law
Knowlton, Robert Henry,	Utica,	2 Civil Eng.
Koehler, Charles George, Jr., A.B.,	Brooklyn,	3 Med. (N.Y.C.)
Koehler, Mathilda Anna,	Springland,	4 Arts
Koeller, Clara Ottilia,	Hoboken, N. J.,	2 Arts
Koenig, Louis,	Brooklyn,	2 Medicine
Kohan, Joseph Henry,	Brooklyn,	Jr. Law
Kohn, Arthur Hirsh,	Philadelphia, Pa.,	3 Civil Eng.
Kohn, Benjamin,	Rockaway Beach,	Jr. Law
Kositzky, Gustavus Adolphus,	Yankton, S. D.,	4 Mech. Eng.
Kosminsky, Isaac Joseph,	Texarkana, Tex.,	2 Mech. Eng.
Kothe, George,	Indianapolis, Ind.,	1 Mech. Eng.
Kouyoumdjian, Haroutinne,	Bagdad, Asiatic Turkey,	1 Mech. Eng.
Kramer, Edwin Weed,	Patterson, La.,	4 Civil Eng.
Kraemer, Milton,	Baltimore, Md.,	2 Mech. Eng.
Krase, Ralph William, B.S.,	New York City,	3 Mech. Eng.
Krause, Mark Champion,	Williamsport, Pa.,	2 Arts
Krauter, Harold S.,	Tobyhanna, Pa.,	2 Mech. Eng.
Kresky, Henry,	Brooklyn,	2 Med. (N. Y. C.)
Kristal, Abraham Francis,	Newark, N. J.,	1 Civil Eng.
Krugler, Wallace,	Jersey City, N. J.,	1 Med. (N.Y.C.)
Krzyzanowsky, Wenzel Witoldt,	Mikulczyn, Austria,	Sp. Agr.
Kuehns, Romeo Benvenuto,	Milwaukee, Wis.,	2 Mech. Eng.
Kuhlmeier, Walter Andrew,	Chicago, Ill.,	3 Mech. Eng.
Kuhn, George Wilfrid,	Brooklyn,	4 Mech. Eng.
Kurtz, Ford,	E. Stroudsburg, Pa.,	2 Civil Eng.
Kurtz, William Overton,	Helena, Mont.,	4 Mech. Eng.
Kuschke, Arthur Wyndham,	Plymouth, Pa.,	1 Civil Eng.
Kyser, Kathryn Belle,	Canastota,	2 Arts
La Breque, Henry Francis,	Holyoke, Mass.,	2 Civil Eng.
Lacy, John Witter,	Stanley,	1 Veterinary
Ladd, Walter Manning,	Buffalo,	2 Mech. Eng.
Laffin, Alfred Grover,	Rockville Centre,	1 Law
Laird, Ida Marie, A.B.,	Auburn,	3 Med. (N.Y.C.)
Lally, Ralph Richard,	Pittsburg, Pa.,	1 Mech. Eng.
Lamb, Roy Dane,	Chicago, Ill.,	3 Mech. Eng.

Lambert, Sophia Wilhelmina,	<i>Brooklyn,</i>	4 Arts
Lamberton, Albert Meredith,	<i>Westfield, N. J.,</i>	1 Mech. Eng.
Lampert, Milton Albert,	<i>New York City,</i>	1 Med. (N.Y.C.)
Lance, William Lyman,	<i>Kingston, Pa.,</i>	1 Civil Eng.
Landa, Francisco,	<i>Habana, Cuba,</i>	3 Civil Eng.
Lande, Isaac,	<i>Elmira,</i>	2 Arts
Lander, Ralph Clinton,	<i>Naugatuck, Conn.,</i>	3 Arch.
Landers, Eugene,	<i>Upper Lisle,</i>	4 Mech. Eng.
Landesman, Harry,	<i>New York City,</i>	1 Med. (N.Y.C.)
Landis, Harry L.,	<i>Waynesboro, Pa.,</i>	1 Mech. Eng.
Landmesser, Charles Frederick,	<i>Newark, N. J.,</i>	3 Arts
Lane, George Comfort,	<i>Akron, O.,</i>	1 Civil Eng.
Lane, Richard Jenkins,	<i>Philadelphia, Pa.,</i>	2 Mech. Eng.
Lange, Carl William,	<i>Galveston, Tex.,</i>	4 Mech. Eng.
Langfeld, Clarence Meyer,	<i>Baltimore, Md.,</i>	3 Mech. Eng.
Lapp, Grover William,	<i>Rochester,</i>	2 Mech. Eng.
Larkin, John Kneisley,	<i>Dayton, O.,</i>	2 Medicine
Lasher, Herbert,	<i>Griffin Corners,</i>	1 Law
Lathrop, Henry Julian,	<i>Tottenville,</i>	4 Arts
Lattin, Benton,	<i>Ithaca,</i>	1 Civil Eng.
Lattin, Berton,	<i>Ithaca,</i>	2 Arts
Laurie, Thomas Forrest,	<i>Auburn,</i>	2 Medicine
Laurie-Walker, George Livingstone, A.B.,	<i>Argyll, Scotland,</i>	Sp. Mech. Eng.
Law, Harry Comstock,	<i>Collins,</i>	1 Civil Eng.
Law, Lito Willett,	<i>Brooklyn,</i>	4 Mech. Eng.
Lawrence, Frank Elmaker,	<i>Albany,</i>	3 Civil Eng.
Lawrence, Howard Leslie,	<i>Syracuse,</i>	3 Veterinary
Lawry, Rolla Cecil,	<i>Frankford, Mo.,</i>	Sp. Agr.
Lawson, George,	<i>New York City,</i>	3 Mech. Eng.
Lay, Robert Phinny,	<i>Franklin, Pa.,</i>	1 Mech. Eng.
Layne, Francis Bernard,	<i>Fort Plain,</i>	2 Arts
Lazo, Antonio, Jr.,	<i>Gautemala City, C. A.,</i>	2 Civil Eng.
Leach, William Henry,	<i>Troupsburg,</i>	1 Arts
Leak, Clarence Elmer, B.S.,	<i>Greensboro, N. C.,</i>	Sp. Mech. Eng.
Leatherman, Marian,	<i>Pittsburgh, Pa.,</i>	2 Arts
Leavitt, Arthur Harter,	<i>Akron, O.,</i>	1 Mech. Eng.
Lechler, Bruno Charles,	<i>Brooklyn,</i>	1 Civil Eng.
Lee, Albert Edward,	<i>Richmond Hill,</i>	2 Civil Eng.
Lee, Cazenove Gardner, Jr.,	<i>Washington, D.C.,</i>	2 Mech. Eng.
Lee, Charles Avery, Jr.,	<i>Chicago, Ill.,</i>	3 Mech. Eng.
Lee, Maurice du Pont,	<i>Washington, D. C.,</i>	1 Mech. Eng.

Lee, Ora, Jr.,	<i>Albion,</i>	3 Agriculture
Lee, William Forrest,	<i>N. Tonawanda,</i>	3 Arts
Lee, William Ross, A.B., A.M.,	<i>Gouverneur,</i>	Sr. Law
Lefens, Walter Conrad,	<i>Chicago, Ill.,</i>	4 Mech. Eng.
Lefferts, Edwin Boughton,	<i>Gloversville,</i>	2 Mech. Eng.
Leffler, Leo Julius,	<i>Brooklyn,</i>	2 Mech. Eng.
Lehman, Allan S,	<i>New York City,</i>	3 Arts
Lehman, Max,	<i>Brooklyn,</i>	2 Med. (N. Y. C.)
Leighton, Arthur,	<i>Brooklyn,</i>	2 Arts
Leighton, Frederick,	<i>Canandaigua,</i>	3 Mech. Eng.
Leighton, Henry,	<i>Canandaigua,</i>	3 Arts
Leland, Emmons William,	<i>Ithaca,</i>	2 Agriculture
Lemon, Burton Judson,	<i>Bethel,</i>	1 Arts
Leon, Harry,	<i>Little Falls,</i>	1 Medicine
Leon, Ricardo,	<i>Oaxaca, Mexico,</i>	3 Mech. Eng.
Leonard, Bert Campfield,	<i>Seneca Falls,</i>	4 Arts
Leschen, William Frederick,	<i>St. Louis, Mo.,</i>	1 Civil Eng.
Leah, Paul Edgar,	<i>Washington, D. C.,</i>	Jr. Law
Levin, Samuel,	<i>New York City,</i>	3 Med. (N. Y. C.)
Levkowich, Harry James,	<i>Paterson, N. J.,</i>	1 Law
Levy, Elsa Esther,	<i>Williamsport, Pa.,</i>	2 Arts
Lewis, Arch Cushing,	<i>Ulysses, Pa.,</i>	1 Law
Lewis, Charles Henry,	<i>Ossining,</i>	1 Mech. Eng.
Lewis, Emma Massey,	<i>Ithaca,</i>	Sp. Agriculture
Lewis, George Francis,	<i>Patchogue,</i>	1 Law
Lewis, John Moore,	<i>Elkhorn, W. Va.,</i>	1 Civil Eng.
Lewis, Lloyd Virgil,	<i>Vernon,</i>	4 Mech. Eng.
Lewis, Ora Mabelle, A.B.,	<i>Lancaster, Mass.,</i>	2 Medicine
Lewis, Watson,	<i>Ithaca,</i>	1 Veterinary
Libby, Luther Isaac,	<i>Worcester, Mass.,</i>	2 Agriculture
Lichtenthaler, Frank Edward,	<i>Reading, Pa.,</i>	3 Arts
Lidgerwood, Lulu Jean,	<i>Putnam,</i>	2 Arts
Liebling, Philip,	<i>New York City,</i>	1 Med. (N.Y.C.)
Lies, Bennett Frederick,	<i>Buffalo,</i>	Sr. Law
Lilienthal, Celestin Victor,	<i>Albany,</i>	2 Arts
Linch, Charles,	<i>Ithaca,</i>	3 Veterinary
Lindman, Raymond Heald,	<i>Chicago, Ill.,</i>	2 Mech. Eng.
Lindorff, Theodore Julius,	<i>Flushing,</i>	1 Arts
Lindsay, Wallace Blume,	<i>Amsterdam,</i>	1 Mech. Eng.
Link, Edgar Martin,	<i>Williamsport, Pa.,</i>	1 Mech. Eng.
Linsley, Charles Wells,	<i>Oswego,</i>	2 Civil Eng.
Linton, Orlando Hayward,	<i>Truro, N. S., Can.,</i>	1 Civil Eng.

Lintz, William,	New York City,	3 Med. (N.Y.C.)
Liphshitz, Mark,	New York City,	1 Med. (N. Y. C.)
Lippert, Frederick Charles,	Phoenixville, Pa.,	2 Mech. Eng.
Littig, Charles Ross,	Baltimore, Md.,	1 Mech. Eng.
Little, Clarence Duane,	Montclair, N.J.,	2 Mech. Eng.
Little, Elbert Warfield,	Ithaca,	2 Veterinary
Livermore, Kenneth Carter,	Watertown, Mass.,	1 Agriculture
Lix-Klett, Ernesto,	Buenos Aires, Arg. Rep.,	2 Mech. Eng.
Locke, Lura May,	Wellsboro, Pa.,	4 Arts
Locke, Mabel,	Wellsboro, Pa.,	4 Arts
Lockerby, Robert Archibald,	Montreal, Canada,	3 Civil Eng.
Loeb, Lucien Samuel,	Montgomery, Ala.,	1 Arts
Loeber, Edith, A.B.,	New Orleans, La.,	4 Med. (N.Y.C.)
Loewe, Arthur Perseus,	Milwaukee, Wis.,	1 Agriculture
London, Julius,	New York City,	4 Med. (N.Y.C.)
Long, Olive May,	Oswego,	1 Arts
Longbothum, George Thornton,	Fort Salonga,	2 Medicine
Loomis, Leroy Howard,	Cleveland, O.,	2 Mech. Eng.
van Loon, Hendrik Willem,	The Hague, Holland,	4 Arts
Loop, Howard Scott,	North East, Pa.,	4 Agriculture
Lopez, Carlos,	Iloilo, P.I.,	1 Civil Eng.
Lorenz, James Nicholas,	Uhrichsville, O.,	4 Arts
Loudon, Anna Louise,	Troy,	2 Arts
Louis, Henry Charles Ernest, A.B.,	Baltimore, Md.,	3 Mech. Eng.
Lounsbury, Clarence,	Smithboro,	1 Agriculture
Love, Albert Joy,	Aurora, Ill.,	1 Civil Eng.
Lovejoy, William Henry,	Buffalo,	1 Mech. Eng.
Loveland, Daniel Arthur,	Windsor,	2 Mech. Eng.
Lowndes, Andrew Jackson,	Baltimore, Md.,	4 Mech. Eng.
Lowry, Arthur Thompson,	Berwick, Pa.,	2 Mech. Eng.
Lowthian, Walter Edward,	New York City,	2 Med. (N.Y.C.)
Lubin, Harry,	New York City,	Sp. Agriculture
Lucker, Grover,	Brooklyn,	2 Mech. Eng.
Lucker, Harry Adolph,	Brooklyn,	1 Law
Luke, Harry Clifford, Ph.G.,	Salamanca,	2 Medicine
Lull, Roy Vincent,	Ithaca,	1 Veterinary
Lum, Paul Bentley,	Washington, D.C.,	2 Civil Eng.
Luppen, Luppe Barnes,	Pekin, Ill.,	1 Mech. Eng.
Luther, George Diller,	Ashland, Pa.,	1 Civil Eng.
Luther, George William,	Olean,	4 Mech. Eng.
Lyford, Percy Lang,	Waverly,	2 Agriculture
Lyle, William Frank,	Mt. Vernon,	1 Mech. Eng.

Lynah, James,	Savannah, Ga.,	4 Mech. Eng.
Lynch, George Michael,	Andover,	1 Med. (N.Y.C.)
Lyndon, Sophie Harriet,	Fairport,	1 Arts
Lynn, Laurence King,	Pittsburg, Pa.,	3 Mech. Eng.
Lyon, Charles Albert, A.B.,	East Orange, N.J.,	2 Mech. Eng.
Lyon, Harold Hine,	Ellenville,	1 Architecture
Lyttton, Walter,	Chicago, Ill.,	1 Mech. Eng.
McArthur, Warren, Jr.,	Chicago, Ill.,	1 Mech. Eng.
McCabe, Mary Elizabeth,	Brooklyn,	2 Arts
McCarthy, Alice Margaret,	Addison,	4 Arts
McCarthy, Ellen S.,	Cortland,	2 Arts
McCarthy, Francis John,	Ithaca,	1 Veterinary
McCarthy, Thomas Alfred,	Ithaca,	2 Veterinary
McCaughey, Vaughan,	Greenville, O.,	1 Agriculture
McCauley, Guy Livengood,	Petersburg, Pa.,	1 Civil Eng.
McCaully, William Henry,	Washington, D.C.,	1 Civil Eng.
McClenahan, Le Roy Regester,	Baltimore, Md.,	4 Mech. Eng.
McColloms, Max Reed,	Newton, Iowa,	3 Arts
McCollum, Eugene Lawrence,	Lockport,	Sr. Law
McConnell, Benjamin Stuart,	St. Joseph, Mich.,	1 Mech. Eng.
McConnell, Harold Mead,	St. Joseph, Mich.,	2 Mech. Eng.
McCook, George Wythe, Jr.,	Steubenville, O.,	1 Law
McCormick, Mary Gertrude,	Monticello,	3 Arts
McCoy, Charles Everett,	Smethport, Pa.,	1 Arts
McCurdy, Alexander Dales,	Philadelphia, Pa.,	2 Mech. Eng.
McCurdy, George Earle,	Dunbar, Pa.,	4 Civil Eng.
McDermott, George Rolland, Jr.,	Ithaca,	4 Mech. Eng.
McDonald, Alan, B.A.,	Louisville, Ky.,	4 Mech. Eng.
Macdonald, Harold Gould,	Austin, Manitoba, Can.,	2 Civil Eng.
McDougall, Eric Walter,	Montclair, N.J.,	2 Mech. Eng.
McFadden, Benjamin Curtis,	Chicago, Ill.,	1 Mech. Eng.
MacFadden, Joel Parkhurst,	Chicago, Ill.,	1 Civil Eng.
McFarlan, Edward,	Brooklyn,	1 Mech. Eng.
McFarland, Helen Louise,	Harrisburg, Pa.,	1 Arts
Macfarlane, James William,	Pittsburg, Pa.,	1 Mech. Eng.
McGee, Walter Vaughan,	Plainfield, N.J.,	1 Law
McGinnis, Bernard Benedict,	Genesee, Pa.,	4 Arts
McGinnis, Ralph,	Friendship,	1 Veterinary
McGlade, John Joseph,	New York City,	4 Med. (N.Y.C.)
McGlone, John, A.B.,	Baltimore, Md.,	3 Mech. Eng.
McGrath, John Francis,	Holyoke, Mass.,	1 Med. (N.Y.C.)
MacGregor, Herbert Paterson,	New York City,	4 Med. (N.Y.C.)

McHenry, Roy Congdon,	<i>Binghamton,</i>	Sr. Law
McIntosh, Mary Lucinda,	<i>Locke,</i>	2 Arts
McIntosh, Robert, Ph.B.,	<i>Grinnell, Ia.,</i>	4 Mech. Eng.
McIver, George Walter, B.S.,	<i>Charlestown, S. C.,</i>	3 Mech. Eng.
Mc Kay, Andrew William,	<i>Ithaca,</i>	1 Mech. Eng.
McKay, Charles Watson,	<i>Brooklyn,</i>	3 Mech. Eng.
McKay, Florence Lucinda,	<i>Ithaca,</i>	4 Arts, 2 Medicine
MacKellar, James Malcolm,	<i>Cold Spring Harbor,</i>	4 Med. (N.Y.C.)
MacKellar, Thomas,	<i>Philadelphia, Pa.,</i>	2 Civil Eng.
Mackenna, Charles Edward,	<i>Niagara Falls,</i>	1 Law
McKenna, Joseph Augustine,	<i>New York City,</i>	4 Arts
Mackie, Warren Alvin,	<i>New Orleans, La.,</i>	2 Civil Eng.
MacKinlay, Ned Scofield,	<i>Denver, Colo.,</i>	2 Mech. Eng.
Mackintosh, Donald Chase,	<i>Holyoke, Mass.,</i>	1 Mech. Eng.
McKown, William Reid,	<i>Pittsburgh, Pa.,</i>	2 Mech. Eng.
McLaren, Walter Austin,	<i>Brooklyn,</i>	3 Med. (N.Y.C.)
McLellan, Elizabeth Bals,	<i>Hyde Park, Mass.,</i>	Sp. Agriculture
McLeod, Donald Fraser,	<i>Westville, N. S. Canada,</i>	2 Civil Eng.
McLeod, Norman McCallum,	<i>Philadelphia, Pa.,</i>	2 Mech. Eng.
McMahon, Edward Augustine,	<i>New York City,</i>	1 Med. (N.Y.C.)
McMeekan, Walter,	<i>Brooklyn,</i>	Sr. Law
McMillan, Hugh Gurney,	<i>East Aurora,</i>	2 Mech. Eng.
McMurtrie, William Anderson, Ph.B.,	<i>Belvidere, N. J.,</i>	4 Med. (N. Y. C.)
McNair, Frederick Henry,	<i>Mt. Morris,</i>	3 Veterinary
McNamara, Helen Catherine,	<i>Binghamton,</i>	2 Arts
McNamara, Paul James,	<i>Binghamton,</i>	1 Law
McNevens, John Alphousus,	<i>New York City,</i>	3 Med. (N. Y. C.)
Macpherson, Leslie Mitchell,	<i>Ithaca,</i>	2 Mech. Eng.
MacPherson, Lloyd Madison,	<i>Dover, N. J.,</i>	1 Arts
MacRae, Tom,	<i>New York City,</i>	2 Med. (N.Y.C.)
McWhorter, Hugh Brooks,	<i>Ithaca,</i>	2 Mech. Eng.
Mabee, Cecil Watkins,	<i>Ithaca,</i>	2 Arts
Macy, George Earl,	<i>Chicago, Ill.,</i>	2 Mech. Eng.
Madden, John Henry,	<i>Buffalo,</i>	1 Mech. Eng.
Madigan, Francis William,	<i>Centre Village,</i>	2 Civil Eng.
Magid, Maurice Oliver,	<i>New York City,</i>	4 Med. (N. Y. C.)
Magna, Joseph Nicholas,	<i>Holyoke, Mass.,</i>	2 Mech. Eng.
Magoffin, Charles Frederick,	<i>North Tonawanda,</i>	1 Mech. Eng.
Maider, Martha,	<i>Phoenix,</i>	2 Arts
Mailloux, Joseph John,	<i>Watervliet,</i>	1 Law
Main, Eugene Adams,	<i>Brooklyn,</i>	2 Mech. Eng.

Maine, Clarence,	Summit, N. J.,	1 Mech. Eng.
Mainwaring, William Hamer,	Cresson, Pa.,	4 Mech. Eng.
Major, Horace Fairfield,	Ithaca,	Jr. Law
Mallison, Charles Henry,	Medina,	2 Civil Eng.
Mallon, Richard Sandford,	Paterson, N. J.,	4 Med. (N. Y. C.)
Maloney, Alfred Joseph,	Ithaca,	2 Veterinary
Mambert, Stephen Babcock,	Kingston,	1 Civil Eng.
Mann, Charles Maitland, A.B.,	New York City,	2 Med. (N.Y.C.)
Mann, Charles William,	Pittsburgh, Pa.,	3 Agriculture
Manu, David Farquhar,	Washington, D. C.,	1 Mech. Eng.
Mann, Harvey Blaine,	Lewistown, Pa.,	2 Mech. Eng.
Mannoccir, James Earle, B.A.,	Memphis, Tenn.,	1 Mech. Eng.
Mansfield, Edward Raymond, B.S.,	Orono, Me.,	2 Med. (N.Y.C.)
Mantel, Frank Alphonse,	Auburn,	1 Arts
Manulkin, George,	Brooklyn,	2 Med. (N. Y. C.)
Manville, William Willett,	Newport News, Va.,	2 Mech. Eng.
Marcellus, Roy Clark,	North Adams, Mass.,	1 Mech. Eng.
Margerum, Briton Albert,	Philadelphia, Pa.,	3 Mech. Eng.
Marinaro, Frank Xavier,	New York City,	1 Med. (N.Y.C.)
Markel, Edwin Clark,	Waterloo,	1 Law
Markey, Edward Bond,	Eaton, O.,	3 Med. (N.Y.C.)
Markham, DeWitt Cornish,	Lyons Falls,	1 Law
Marks, Hyman Sanford,	Troy,	2 Mech. Eng.
Marschark, Max,	New York City,	1 Med. (N.Y.C.)
Marsh, Benjamin Vail,	Burlington, N. J.,	1 Arts
Marsh, Charles Reed,	Philadelphia, Pa.,	1 Civil Eng.
Marsh, Miles Lucius,	New York City,	Sp. Agriculture
Marsh, Reginald Edward,	Glens Falls,	2 Architecture
Marshall, James Wallace,	Wilmerding, Pa.,	1 Mech. Eng.
Marshall, Thomas Bayne,	Allegheny, Pa.,	4 Arts
Marland, Walter Stanley,	Franklin,	1 Arts
Marston, Sylvanus Boardman,	Pasadena, Cal.,	2 Architecture
Martin, Arthur Chalmers,	Rockville Centre,	2 Medicine
Martin, Arthur Harold, A.B.,	Cooperstown,	3 Med. (N. Y. C.)
Martin, Caldwell,	Denver, Colo.,	Jr. Law
Martin, George Winfield,	Tannersville,	Sr. Law
Martin, Harry Wheeler,	Worcester,	3 Arts
Martin, Jennie Melissa,	Binghamton,	2 Arts
Martin, Mabel Agnes,	Binghamton,	1 Arts
Martin, Paris,	Idaho Falls, Idaho,	1 Law
Martin, Thomas, Jr.,	Belleville, N.J.,	1 Civil Eng.
Martinez, Carlos Alfonso, B.S.,	Hornos, Coah, Mexico,	4 Mech. Eng.

Martinez, Christobal Antonio,	<i>Hornos, Coah, Mexico,</i>	2 Civil Eng.
Martinez y Martinez, Isaac Francisco,		
Marvin, Ross Gilmore,	<i>Mayagüez, Porto Rico,</i>	Jr. Law
Mason, Alfred Lewis,	<i>Elmira,</i>	4 Arts
Mason, Edward Fraser,	<i>Syracuse,</i>	2 Veterinary
Mason, Marcellius,	<i>Hornellsville,</i>	2 Mech. Eng.
Mason, Norman Clifford,	<i>Saratoga,</i>	1 Veterinary
Masters, Frank Milton,	<i>Highland Park, Ill.,</i>	1 Law
Masterson, Wilmer Dallam,	<i>Everett, Pa.,</i>	1 Mech. Eng.
Matthews, Hubert Willard, B.S.,	<i>Galveston, Tex.,</i>	3 Mech. Eng.
Matthews, Robertson,	<i>Blackville, S. C.,</i>	3 Mech. Eng.
Mattick, Walter Lester,	<i>Bolton, Ont., Can.,</i>	1 Mech. Eng.
Mattison, Albert Sherman,	<i>Buffalo,</i>	1 Arts
Maughan, Allan,	<i>Altmar,</i>	1 Mech. Eng.
Maxwell, Donald Price,	<i>Neutral Bay, Sydney, Australia,</i>	3 Mech. Eng.
Maybaum, Jacob,	<i>Georgetown, Colo.,</i>	2 Civil Eng.
Maynard, Henry Warner,	<i>New York City,</i>	4 Med. (N.Y.C.)
Mayo, Edward Hanson,	<i>Washington, D. C.,</i>	2 Civil Eng.
Mayo, Geoffrey Wainman,	<i>Indianapolis, Ind.,</i>	4 Mech. Eng.
Mazer, Jacob,	<i>Smethport, Pa.,</i>	2 Civil Eng.
Mead, Theodore Fletcher,	<i>Allegheny, Pa.,</i>	1 Civil Eng.
Mears, John Farnham,	<i>Morrisville,</i>	1 Arts
Meeker, Robert Levern,	<i>Scranton, Pa.,</i>	1 Mech. Eng.
Mehling, Mortimer Francis,	<i>McDonough,</i>	Sp. Agriculture
Meissner, Scott Thadeus,	<i>Cleveland, O.,</i>	4 Arts
Meister, James Franklin,	<i>Erie, Pa.,</i>	3 Mech. Eng.
Mellen, Stanley Henry,	<i>Kansas City, Mo.,</i>	4 Mech. Eng.
Mellowes, Alfred Witherman,	<i>Windham,</i>	1 Arts
Melvin, Carroll Loomis,	<i>Dayton, O.,</i>	3 Mech. Eng.
Mendalis, Morris,	<i>Bradford, Pa.,</i>	1 Mech. Eng.
Mennen, William Gerhard,	<i>Brooklyn,</i>	1 Med. (N. Y. C.)
Menough, Paul Simpson,	<i>Newark, N. J.,</i>	1 Mech. Eng.
Merrick, Edgar Hamilton,	<i>Wellsville, O.,</i>	1 Mech. Eng.
Merrill, Charlie George,	<i>Gouverneur,</i>	1 Mech. Eng.
Merrill, Edward Francis,	<i>Ithaca,</i>	Sp. Painting
Merriman, Eugene Duette,	<i>New Rochelle,</i>	1 Arts
Merrow, Paulina,	<i>Ithaca,</i>	4 Arts
Merry, Albert Edmund,	<i>Hartford, Conn.,</i>	2 Arts
Mertens, Paul,	<i>Syracuse,</i>	2 Veterinary
Mertz, Edna Lenora,	<i>Rahway, N. J.,</i>	1 Architecture
Measer, Anna Teresa,	<i>Sedalia, Mo.,</i>	1 Arts
	<i>Ithaca,</i>	4 Arts

Messersmith, Wesley Martin,	Plainfield, N. J.,	1 Med. (N.Y.C.)
Metzger, Harold Nuhn,	Buffalo,	2 Civil Eng.
Meyer, Edgar Joseph,	New York City,	4 Mech. Eng.
Meyer, Henry Edward Berthold,	Brooklyn,	2 Med. (N. Y. C.)
Middleditch, Lyman,	South Orange, N. J.,	3 Mech. Eng.
Midwood, Henry Hazard,	Barrington R. I.,	1 Arts
Miles, Hamilton Vincent,	Baltimore, Md.,	1 Civil Eng.
Millard, Thomas Cheever, Jr.,	Danbury, Conn.,	2 Mech. Eng.
Miller, Arthur Frederick,	Buffalo,	4 Mech. Eng.
Miller, Daniel,	Reading, Pa.,	1 Mech. Eng.
Miller, Emma Adams,	Shamokin, Pa.,	2 Arts
Miller, Frederick,	Mt. Vernon,	3 Mech. Eng.
Miller, Fröderick Robert, B.A.,	Toronto, Can.,	2 Medicine
Miller, Henry Joseph,	Washington, D. C.,	2 Mech. Eng.
Miller, John Fred,	Warsaw,	2 Veterinary
Miller, Mary Belle,	Homer,	1 Arts
Miller, Reba Jane,	West Brighton,	4 Arts
Miller, Sereno Glassell,	Freetport,	1 Mech. Eng.
Miller, William Henry,	Newark,	Sp. Agriculture
Millott, Henry Christopher,	Sandusky, O.,	Sp. Architecture
Minard, Edwy Le Roy,	Boonton, N. J.,	2 Med. (N.Y.C.)
Minott, Eno Samuel Forrester,	New York City,	3 Med. (N.Y.C.)
Minton, Ogden,	Brooklyn,	1 Mech. Eng.
Mintz, Jay Jerome,	Ithaca,	2 Mech. Eng.
Mirick, Carlos Brown,	Washington, D. C.,	4 Mech. Eng.
Miskella, William James,	Cass Lake, Minn.,	4 Mech. Eng.
Mitchell, James Reid, Jr.,	New York City,	4 Arts, 1 Medicine
Mitchell, Ray Verne,	Buffalo,	1 Law
Mitchell, Walter R. M.E.,	LaPlata, Md.,	3 Mech. Eng.
Mitler, Herbert Ernest,	New York City,	1 Mech. Eng.
Mix, David Cameron,	Ithaca,	4 Mech. Eng.
Moeller, Henry Louis,	Hoboken, N. J.,	2 Civil Eng.
Moller, Elmer Rhodes,	New York City,	Sp. Agriculture
Monrad, Karen Elise,	New York City,	2 Arts
Monrad, Karl Johan,	New York City,	1 Arts
Monroe, John Duncan,	Andes,	Sr. Law
Montgomery, Dudley,	New York City,	2 Mech. Eng.
Montillon, Eugene David,	Buffalo,	1 Architecture
Moers, John Hooker,	Plattsburgh,	1 Law
Moore, Claude Graves,	E. Stroudsburg, Pa.,	1 Law
Moore, Emmeline,	Batavia,	2 Arts
Moore, Fredric Pettes, Jr.,	Belleview, Pa.,	1 Civil Eng.

Moore, James Terence,	<i>Elmira,</i>	1 Arts
Moorman, Silas Mercer, A.B.,	<i>Georgetown, Ky.,</i>	1 Medicine
Moorman, William Glass,	<i>Buffalo,</i>	1 Mech. Eng.
Morehouse, David Page, Jr.,	<i>Oswego,</i>	Jr. Law
Morehouse, Walter Gould,	<i>Briarcliffe Manor,</i>	1 Veterinary
Moreland, Alfred Glenn,	<i>Van Etten,</i>	1 Agriculture
Morgan, Anna Haven,	<i>New London, Conn.,</i>	2 Arts
Morgan, William Albery, Jr.,	<i>Buffalo,</i>	4 Mech. Eng.
Morgan, William Conant, B.S.,	<i>Plainfield, N. J.,</i>	3 Mech. Eng.
Morgans, Howard K.,	<i>Christopher, Pa.,</i>	2 Civil Eng.
Morgenstern, Morris,	<i>McKeesport, Pa.,</i>	2 Mech. Eng.
Morris, George Linn,	<i>Youngstown, O.,</i>	1 Mech. Eng.
Morrow, Joseph Caldwell, Jr.,	<i>Pittsburg, Pa.,</i>	1 Law
Morse, Albert Withers,	<i>New York City,</i>	1 Mech. Eng.
Morse, Hazen H.,	<i>New Rochelle,</i>	1 Law
Morse, Henry New,	<i>Northport,</i>	4 Arts
Morse, William Joseph,	<i>Louisville,</i>	1 Agriculture
Mortimer, Charles Ward, B.S.,	<i>Winona, Miss.,</i>	2 Mech. Eng.
Mosher, George,	<i>New York City,</i>	1 Med. (N.Y.C.)
Mosher, George Fred,	<i>Kansas City, Mo.,</i>	3 Arts
Mosher, Guy Walter,	<i>Cold Spring,</i>	2 Mech. Eng.
Moss, Sherwood Conkling,	<i>Buffalo,</i>	2 Mech. Eng.
Mount, Louis Burgh, A.B.,	<i>Troy,</i>	4 Med. (N. Y. C.)
Mourning, Garland Hubbard, Jr.,	<i>Louisville, Ky.,</i>	4 Mech. Eng.
Mowat, John Frederic, A.B.,	<i>Peoria, Ill.,</i>	3 Mech. Eng.
Moyer, Thomas Jefferson,	<i>Fort Plain,</i>	2 Arts
Mueller, Curt Berthold,	<i>Cleveland, O.,</i>	3 Arts
Mueller, Fred Jacob,	<i>Los Angeles, Calif.,</i>	2 Civil Eng.
Muenzenberger, Charles John,	<i>Meadville, Pa.,</i>	1 Architecture
Mulligan, Charles Lawrence,	<i>Brooklyn,</i>	2 Arts
Mulvihill, Walter Austin,	<i>Brooklyn,</i>	1 Arts
Munden, Ralph,	<i>Allegheny, Pa.,</i>	3 Mech. Eng.
Munschauer, Frederick Eugene,	<i>Buffalo,</i>	1 Mech. Eng.
Munson, David Curtiss,	<i>Medina,</i>	4 Arts, 1 Medicine
Munson, William Howes,	<i>Medina,</i>	2 Arts
Murchie, Percy,	<i>Brooklyn,</i>	3 Arts
Murphy, Charles Reilly,	<i>Detroit, Mich.,</i>	2 Arts
Murphy, James Douglas,	<i>Girard, Pa.,</i>	1 Law
Murphy, John Harold,	<i>Detroit, Mich.,</i>	2 Arts
Murphy, Joseph Gleeson,	<i>Detroit, Mich.,</i>	3 Arts
Murray, Clare D.,	<i>De Ruyter,</i>	2 Civil Eng.
Murray, Edward Clare,	<i>Philipsburg, Pa.,</i>	1 Civil Eng.

Murray, Morrison Foster,	Brooklyn,	1 Med. (N.Y.C.)
Murset, Charles William,	Port Jervis,	4 Med. (N.Y.C.)
Mussi, Angelo Peter,	Auburn,	1 Civil Eng.
Myers, Elizabeth Aerial,	Frankfort,	4 Arts
Myers, Phillip,	Kingston, Pa.,	2 Civil Eng.
Nadoolman, Max,	New York City,	1 Med. (N.Y.C.)
Nakai, Tomikichi,	Horikawa, Kyoto, Japan,	1 Mech. Eng.
Nasmyth, George William,	Buffalo,	2 Arts
Nay, George Nelson,	Jericho, Vt.,	Sr. Law
Neary, James Eugene,	Ithaca,	2 Mech. Eng.
Nedham, Stanley Cromwell,	Perth Amboy, N.J.,	1 Mech. Eng.
Neef, Frederick Emil, M.D.,	Springfield, Ill.,	Sp. Med. (N.Y.C.)
Neefus, Wendover,	Hudson,	1 Arts
Neely, John Thompson, B.S., M.E.,	Portsmouth, Va.,	Sp. Civil Eng.
Neff, William, A.B.,	Walton,	Sr. Law
Neilson, George William,	Philadelphia, Pa.,	3 Mech. Eng.
Nelbach, George Joseph,	Utica,	4 Arts
Nelligan, Walter,	Ithaca,	2 Veterinary
Nelson, Elbert James,	Delaware, O.,	2 Civil Eng.
Nelson, Harry Merton,	East Ryegate, Vt.,	1 Civil Eng.
Netzorg, Sol Charles,	Ithaca, Mich.,	4 Mech. Eng.
Nevins, David William,	New York City,	1 Veterinary
Newberry, Andrew White,	Sandusky, O.,	4 Arts
Newcomb, Robert Cook,	Whitehall,	3 Mech. Eng.
Newcomb, Robert Everett,	Holyoke, Mass.,	2 Mech. Eng.
Newcomb, Wallace Ranlette,	Cherry Creek,	4 Arts
Newhall, John,	Glencoe, Ill.,	1 Agriculture
Newkirk, Clement Roy,	Brooklyn,	2 Architecture
Newman, Edmund Taylor,	Buffalo,	3 Arts
Newman, Frederick Jerome,	Buffalo,	4 Arts
Newman, Leander Allison,	Penn Yan,	1 Medicine
Newton, George Albert,	St. James,	4 Med. (N.Y.C.)
Newton, James Quigg,	Pueblo, Colo.,	1 Law
Newton, Wilbur W.,	Pueblo, Colo.,	4 Arts
Nichols, Clayton Worthington, Jr.,	Camden, N.J.,	3 Mech. Eng.
Nichols, Elizabeth,	Ithaca,	4 Arts
Nichols, De Witt Lethbridge,	Aurora, Ill.,	1 Civil Eng.
Nichols, Edson Hoyt,	Camden, N.J.,	1 Arts
Nichols, Franklin Pierce,	Dayton, O.,	Sp. Architecture
Nichols, Robert Preston,	Ithaca,	3 Arts
Nichols, William Holmes,	Chicago, Ill.,	2 Mech. Eng.
Nickerson, Charles Willis,	Stony Point,	2 Mech. Eng.

Nickerson, Ralph Richard,	<i>Holyoke, Mass.,</i>	2 Mech. Eng.
Nightingale, Grenelle Lionel,	<i>Passaic, N. J.,</i>	2 Mech. Eng.
Ninomiya, Teru,	<i>Moji, Japan,</i>	4 Mech. Eng.
Nitchie, Charles Carter,	<i>Evanston, Ill.,</i>	4 Arts
Nitchie, Francis Raymond,	<i>Evanston, Ill.,</i>	2 Civil Eng.
Nobis, Walter Scott,	<i>New York City,</i>	1 Arts
Nobles, Jennie Bronson,	<i>Swartwood,</i>	1 Arts
Nomura, Tomoji,	<i>Tokushima, Awa, Japan,</i>	1 Architecture
North, Harold Diode,	<i>Cleveland, O.,</i>	1 Mech. Eng.
North, Robert,	<i>Batavia,</i>	4 Architecture
Norton, George Robinson,	<i>Friendship,</i>	3 Mech. Eng.
Norton, Irvin,	<i>Camden,</i>	4 Mech. Eng.
Nowak, Walter William,	<i>Buffalo,</i>	4 Mech. Eng.
Noyes, Nicholas Hartman,	<i>Dansville,</i>	3 Arts
Nuesse, Harry Lawrence,	<i>Buffalo,</i>	Jr. Law
Nugent, Harold Arthur,	<i>Kingston, Pa.,</i>	1 Mech. Eng.
Nussbaum, Fred Louis,	<i>Apple Creek, O.,</i>	3 Arts
Oberly, Robert Shimer,	<i>Easton, Pa.,</i>	1 Mech. Eng.
Oberndorf, Clarence Paul, A.B.,	<i>New York City,</i>	3 Med. (N.Y.C.)
Oberrender, Stanley Tellman,	<i>Drifton, Pa.,</i>	1 Mech. Eng.
Obert, Asa Joseph,	<i>Lehighton, Pa.,</i>	2 Civil Eng.
O'Brien, John Joseph,	<i>Buffalo,</i>	2 Mech. Eng.
O'Brien, Joseph Alexander, B.A.,	<i>M.A., Medina,</i>	2 Civil Eng.
O'Brien, Paul,	<i>Pittsburg, Pa.,</i>	1 Medicine
O'Connor, Joseph,	<i>Oswego,</i>	2 Mech. Eng.
Odell, Letitia Rebekah,	<i>Erie, Pa.,</i>	4 Arts
Oden'dhal, Charles Joseph,	<i>Baltimore, Md.,</i>	1 Mech. Eng.
Oderkirk, Charles Clayton,	<i>Batavia,</i>	1 Veterinary
Ogden, Horace Sansbury,	<i>Washington, D. C.,</i>	3 Arts
Ogier, George Rufus,	<i>Baltimore, Md.,</i>	1 Civil Eng.
Oliver, Clifford Rylander, A.B.,	<i>Plains, Ga.,</i>	1 Mech. Eng.
O'Neill, Charles Leo, A.B.,	<i>Newark, N. J.,</i>	1 Med. (N.Y.C.)
Ortiz de Zevallos, Emilio,	<i>Lima, Peru,</i>	2 Agriculture
Orvis, Warner Dayton,	<i>New York City,</i>	3 Mech. Eng.
Osgood, Albert Kendrick,	<i>Herkimer,</i>	1 Mech. Eng.
Oskamp, Howard Earle,	<i>Cincinnati, O.,</i>	2 Mech. Eng.
Ostby, Raymond Engelhart,	<i>Providence, R. I.,</i>	2 Mech. Eng.
Ostertag, Rosa Henrietta,	<i>Chicago, Ill.,</i>	Sp. Agriculture
Ostos, José Antonio, <i>Ozuluama,</i>	<i>Vera Cruz, Mexico,</i>	1 Mech. Eng.
Otis, Sidney,	<i>Yonkers,</i>	1 Mech. Eng.
Otto, Henry Stuart,	<i>Montclair, N. J.,</i>	2 Mech. Eng.
Overbaugh, Ethel May,	<i>Amsterdam,</i>	1 Arts
Overman, Max Cyrus,	<i>Springfield, Mass.,</i>	4 Arts

Owen, Charles Hundley,	Denniston, Va.,	3 Mech. Eng.
Owens, Harold VanDyke,	Utica,	4 Civil Eng.
Owens, Robert Stuart,	Brooklyn,	1 Arts
Paaswell, George,	New York City,	1 Civil Eng.
Pace, Delmont,	New York City,	1 Med. (N.Y.C.)
Paddock, Ormond Howland,	Toledo, O.,	2 Mech. Eng.
Page, Kenneth Andrew,	Athens, Pa.	1 Mech. Eng.
Page, Thomas Newton,	Norfolk, Va.,	1 Law
Palma, Tomas Estrada,	Havana, Cuba,	2 Civil Eng.
Palmer, Charles Warner,	Media, Pa.,	2 Arts
Palmer, Elnora May,	Ithaca,	4 Arts
Palmer, George Hollis,	Brooklyn,	2 Med. (N. Y. C.)
Palmer, Henry Oliver,	Geneva,	2 Mech. Eng.
Palmer, Lawrence Achel,	South Hamilton,	2 Veterinary
Palmer, Lewis Eugene,	Seneca Falls,	4 Arts
Palmer, T Raymond,	Ithaca,	2 Civil Eng.
Paltun, Samuel,	New York City,	2 Med. (N.Y.C.)
Pappe, Theodore Frankel,	Sioux City, Ia.,	4 Arts
Park, David William,	New York City,	2 Med. (N.Y.C.)
Parker, Carl William,	Glens Falls,	1 Arts
Parker, Esther Emily,	Matteawan,	4 Arts, 2 Medicine
Parker, George Milford Calvin,	Moscow,	1 Law
Parker, James Griswold,	Cape Vincent,	Sr. Law
Parker, James Heber, P.D.,	Reading, Pa.,	4 Arts
Parker, John Robert,	Aqueduct,	1 Law
Parker, James Wentworth,	Louisville, Ky.,	1 Mech. Eng.
Parker, Lina Maud, A.B.,	Seattle, Wash.,	4 Med. (N. Y. C.)
Parker, Roscoe Conklin,	Perry,	1 Mech. Eng.
Parmley, Harry Mark,	Mahanoy City, Pa.,	1 Mech. Eng.
Parramore, Juliette Bryan Fisher,	Acomac, Va.,	Sp. Arts
Parrish, Justin E., Jr.,	Scranton, Pa.,	1 Mech. Eng.
Parsons, Florence Rosamond,	Denver, Col.,	4 Arts
Parsons, Henry Griscom,	Ithaca,	Sp. Agriculture
Paterson, Charles Judson,	Palmer,	2 Civil Eng.
Patten, Harry Allen,	Cheyenne, Wyo.,	2 Civil Eng.
Patterson, Gus Harold,	Mansfield, O.,	1 Mech. Eng.
Patterson, Howard Charles, Jr.,	Brooklyn,	2 Mech. Eng.
Patterson, Lucius Lamar, A.B., A.M., Hebron, Miss.,	Geneseo,	3 Mech. Eng.
Patterson, Robert Rhoode, A.B.,	Danville, Va.,	4 Med. (N.Y.C.)
Patton, William Fearn, Jr., A.B.,	New York City,	3 Mech. Eng.
Paulus, Roy,	Watertown,	1 Civil Eng.
Pawling, Jesse Randolph,		4 Arts, 1 Medicine

Payne, Charles Rockwell, A.B.,	<i>Wadhams Mills</i> , 3 Med. (N.Y.C.)
Peace, William Stearly, LL.B.,	<i>Philadelphia, Pa.</i> , 1 Arts
Pearce, Frederick Kingsley,	<i>Brooklyn</i> , 1 Mech. Eng.
Pease, George Norman, A.B.,	<i>Portland, Ore.</i> , 2 Medicine
Peavey, Harris Booge,	<i>New York City</i> , 2 Mech. Eng.
Pechmann, Louis August Herman,	<i>St. Louis, Mo.</i> , 1 Civil Eng.
Peck, Fred Eldred,	<i>Wolfville, N. S., Can.</i> , Sp. Agr.
Peck, Howard,	<i>East Orange, N. J.</i> , 3 Arts
Peck, Percival Starr,	<i>Yonkers</i> , 1 Mech. Eng.
Peek, Frederic Albert,	<i>Orchard Park</i> , 1 Arts
Peer, Samuel Sherman,	<i>Ithaca</i> , Jr. Law
Peirce, Clarence Andrew,	<i>Ithaca</i> , 2 Arts
Peirson, Jessie Burnham,	<i>Brockport</i> , 2 Arts
Pendergast, Walter Michael,	<i>Phoenix</i> , 3 Veterinary
Pennell, Amos Gartside,	<i>Chester, Pa.</i> , 1 Arts
Perkins, Charles Taber,	<i>Cazenovia</i> , Sp. Agriculture
Perky, Scott Hancock,	<i>Ithaca</i> , 1 Agriculture
Perrine, Henry Ivey,	<i>Brooklyn</i> , 2 Arts
Perrine, Irving,	<i>Wallkill</i> , 2 Arts
Perry, John Westley, B.S.,	<i>Ithaca</i> , 1 Veterinary
Perry, Lealie Donald,	<i>Carthage</i> , 4 Arts
Persons, James White,	<i>East Aurora</i> , Jr. Law
Peters, Frederic Hallock,	<i>Binghamton</i> , 3 Arts
Peterson, Charles Gilbert,	<i>Lockport</i> , 2 Mech. Eng.
Peterson, John Bogart,	<i>Lodi</i> , 1 Civil Eng.
Petrie, Samuel Leys,	<i>North Tonawanda</i> , 1 Mech. Eng.
Pew, Joseph Newton,	<i>Pittsburg, Pa.</i> , 1 Mech. Eng.
Philbrick, Frank Herbert,	<i>Waterville, Me.</i> , 2 Mech. Eng.
Philipps, James J., M.D.,	<i>New York City</i> , Sp. Med. (N.Y.C.)
Philipps, Joseph Bond,	<i>Kennett Square, Pa.</i> , 2 Mech. Eng.
Phillips, Earl W.,	<i>Savannah</i> , 4 Med. (N. Y. C.)
Phillips, Henry Ormsby,	<i>Pittsburg, Pa.</i> , 2 Mech. Eng.
Pierce, Eunice Martha,	<i>Cohocton</i> , 2 Arts
Pierce, Harold Spalding,	<i>Syracuse</i> , 1 Arts
Pierce, Paul Leon, B.S.,	<i>Chattanooga, Tenn.</i> , 3 Civil Eng.
Pierce, William Edward,	<i>Newburyport, Mass.</i> , 3 Mech. Eng.
Pierce, William Rust,	<i>Syracuse</i> , 2 Arts
Pinger, George, Jr.,	<i>Peoria, Ill.</i> , 4 Mech. Eng.
Pinner, Seymour William,	<i>New York City</i> , 1 Mech. Eng.
Pino Farrera, Francisco, Jr.,	<i>City of Mexico, Mexico</i> , 4 Civil Eng.
Piollet, Victor Emile,	<i>Wysox, Pa.</i> , Sp. Agriculture
Piper, Clarence Brett,	<i>Minneapolis, Minn.</i> , Sr. Law

Pitcher, Frederic Clifford,	Brooklyn,	4 Arts
Pitzman, Harold Wislizenus,	St. Louis, Mo.,	3 Civil Eng.
Placek, Louis Joseph,	New York City,	3 Med. (N.Y.C.)
Plunkett, Thomas Francis, A.B.,	Norwich, Conn.,	1 Med. (N.Y.C.),
Poate, Ernest Marsh,	Rushford,	4 Med. (N.Y.C.)
Poate, Frederick William,	Rushford,	3 Mech. Eng.
Pochet, Henri Pierre,	Verneuil sur Avre, France,	Sp. Agriculture
Poetzsch, Alexander James,	New York City,	1 Civil Eng.
Polk, Leroy Vanderpool,	Poughkeepsie,	1 Veterinary
Pollak, Julian Albert,	Cincinnati, O.,	1 Arts
Pond, Willard Fred,	Rochester,	1 Civil Eng.
Pooley, Thomas Rickett, Jr.,	New York City,	2 Med. (N.Y.C.)
Poor, Ben Perley, A.B.,	Burlington, Ia.,	Sr. Law
Popplewell, Laura Augusta,	Ithaca,	2 Arts
Porter, Floyd John,	Ithaca,	4 Agriculture
Porter, Harry Franklin,	Bridgeport, Conn.,	4 Civil Eng.
Porter, Henry Joshua,	Windsor Locks, Conn.,	2 Mech. Eng.
Porter, Percy Wakeman,	West Hartford, Conn.,	2 Civil Eng.
Post, George Adams, Jr.,	New York City,	4 Mech. Eng.
Potts, Abbie Findlay,	Troy,	3 Arts
Postel, Fritz Andrew,	Davenport, Ia.,	1 Mech. Eng.
Powell, Franklin Guiteau,	Holland Patent,	Sp. Agriculture
Powell, Fred Jackson, B.S.,	Glen Cove,	2 Civil Eng.
Powell, Milton Charles,	Canisteo,	1 Law
Powers, Harold Wyman,	Portland, Me.,	1 Civil Eng.
Powers, Ray Rivington,	Atlanta, Ga.,	1 Arts
Pratt, David Shepard,	Towanda, Pa.,	1 Arts
Preston, Neil DeForest,	Brooklyn,	1 Mech. Eng.
Preston, Sylvester Cosgrave,	Pittsburg, Pa.,	3 Mech. Eng.
Preyer, Albert Paul,	Cincinnati, O.,	1 Arts
Price, Adelbert J.,	Dundee,	3 Med. (N.Y.C.)
Price, Joseph More,	Upper Troy,	Sp. Agriculture
Price, Philip M.,	Johnstown, Pa.,	2 Mech. Eng.
Price, William Kelley,	Kingston,	1 Civil Eng.
Price, William Tudor,	Buffalo,	Sp. Mech. Eng.
Prince, Alice Louise,	Vineland, N.J.,	3 Arts
Prince, Horace Free,	Bloomington, Ill.,	1 Agriculture
Prince, Howard Love,	Byron Center,	2 Medicine
Pritchett, Eliza Esther,	Baltimore, Md.,	Sp. Arts
Prophet, John Mayhew, Jr.,	Mt. Morris,	1 Law
Prucha, Joseph Vit,	Cleveland, O.,	1 Veterinary
Putnam, Henry Sibley,	Chicago, Ill.,	2 Mech. Eng.

Queen, Hallie Elvera,	Washington, D. C.,	1 Agr.
Quick, Ray Lewis,	Ithaca,	2 Mech. Eng.
Quinn, Charles Emmet,	Cohoes,	4 Arts
Quinn, Patrick John,	Oswego,	1 Medicine
Quisumbing, Emilio, B.A.,	Washington, D. C.,	1 Civil Eng.
Raab, George Henry,	Johnstown, Pa.,	1 Mech. Eng.
Rabinowitz, Harold Max,	Brooklyn,	1 Med. (N.Y.C.)
Rabinowitz, Meyer Alfred,	Brooklyn,	2 Med. (N.Y.C.)
Radcliffe, Lewis,	Savannah,	4 Arts
Radley, Hermon Clinton,	Lowville,	2 Arts
Radley, Walter Leeworthy,	Albion,	1 Arts
Raidabaugh, John Adam,	Sparrows Point, Md.,	4 Mech. Eng.
Ramel, George Regis,	New York City,	2 Mech. Eng.
Ramsey, Joseph Henry,	Albany,	4 Mech. Eng.
Rand, Elsie Fidelia,	Brooklyn,	2 Arts
Rand, Marie Gertrude,	Brooklyn,	1 Arts
Rand, Walter Edwards,	Brooklyn,	1 Veterinary
Rankin, George Atwater,	Ithaca,	2 Arts
Ransom, Clara Mabel,	Ithaca,	Sp. Agriculture
Ransom, Frederic Garfield,	Buffalo,	1 Arts
Ransom, William Lynn,	Jamestown,	Sr. Law
Rapley, William Batchelor,	Washington, D. C.,	1 Mech. Eng.
Rappaport, Barneth,	Brooklyn,	1 Med. (N.Y.C.)
Rapuzzi, John,	Ithaca,	1 Civil Eng.
Rassbach, Erich Carl,	Milwaukee, Wis.,	3 Mech. Eng.
Ratchford, Norman,	West Nanticoke; Pa.,	2 Agriculture
Rath, Walter Franklin,	Ackley, Ia.,	4 Mech. Eng.
Rathgeber, Charles Frederick,	Newark, N. J.,	1 Med. (N.Y.C.)
Ratnoff, Hyman Leon,	New York City,	3 Med. (N.Y.C.)
Rattle, Paul Stuart,	Oak Park, Ill.,	4 Mech. Eng.
Ray, Anna Elizabeth, A.B., A.M.,	New York City,	3 Med. (N.Y.C.)
Raynor, Francis Ketcham,	Sag Harbor,	2 Arts
Raynsford, Robert Parker,	Montrose, Pa.,	4 Mech. Eng.
Rea, John Lowra,	Plattsburg,	1 Arts
Read, Effie Alberta, A.B.,	Haverhill, Mass.,	1 Medicine
Read, Herbert John,	Bethel, Conn.,	4 Mech. Eng.
Reardon, Nye Bates,	Brooklyn,	4 Civil Eng.
Redding, Charles Joseph Vincent,	Owego,	1 Med. (N.Y.C.)
Redmond, John Richard,	Greene,	Sr. Law
Redmond, Nicholas Gregory,	Syracuse,	2 Arts
Reece, William Asher,	Christchurch, New Zealand,	3 Mech. Eng.
Reed, Eleanor Victoria Homer,	Hoboken, N. J.,	1 Arts

Reed, James Irwin,	Schenectady,	3 Med. (N.Y.C.)
Reed, Lucy Carleton, A.B.,	Southbridge, Mass.,	2 Medicine
Reese, Dale Fleming,	Newark, N.J.,	2 Mech. Eng.
Reiber, Harry Paul,	Pittsburg, Pa..	1 Mech. Eng.
Reiber, John Louis,	Pittsburg, Pa.,	1 Law
Reid, Eva Charlotte,	New York City,	2 Medicine
Reid, George Taylor,	Tennent, N.J.,	Sp. Agriculture
Reid, Hermon Camp,	Brookton,	1 Mech. Eng.
Reid, John Irvin,	Schenectady,	1 Medicine
Reid, Walker,	Greenwich,	3 Arts
Reidy, Margaret Mary,	Ithaca,	Sp. Arts
Reighart, Horace Robert,	Johnstown, Pa.,	1 Mech. Eng.
Reilly, Daniel Robert,	Cortland,	2 Medicine
Rein, Bernard,	Brooklyn,	4 Med. (N.Y.C.)
Reitz, Chester Nelson,	Seattle, Wash.,	4 Civil Eng.
Rekate, George Herman,	Lancaster,	2 Civil Eng.
Remsen, Allen Halsey,	Dobbs Ferry,	1 Arts
Remsen, Theodore Gerow,	New City,	1 Mech. Eng.
Rennotte, Marie,	Sao Paulo, Brazil, Sp. Med. (N.Y.C.)	
Renold, Charles Garorno,	Manchester, England,	3 Mech. Eng.
Renwick, Allyn King,	Ben Avon, Pa.,	3 Arts
Reynell, Carleton,	New York City,	1 Civil Eng.
Reynolds, Earl Charlton,	Brushton,	1 Medicine
Reynolds, William Warwick,	Washington, D.C.,	3 Civil Eng.
Rhodes, Amy Teagle,	Brooklyn,	1 Arts
Rhodes, Oscar Lynn,	Baltimore, Md.,	1 Civil Eng.
Rice, Frederic Clinton,	Augusta, Ga.,	1 Mech. Eng.
Rice, Howard Cameron,	Buffalo,	4 Mech. Eng.
Rice, John Henry,	North Adams, Mass.,	2 Civil Eng.
Rice, Laurence Joseph, Jr.,	Elmira,	1 Civil Eng.
Rice, Samuel Trost,	Cincinnati, O.,	1 Mech. Eng.
Rice, Willis Ballance,	Peoria, Ill.,	2 Mech. Eng.
Rich, John Lyon,	Hobart,	3 Arts
Rich, Melvin,	Washington, D.C.,	4 Civil Eng.
Richards, Harry Ames,	Alexander,	1 Arts
Richards, John Harold,	Whitehall,	4 Med. (N.Y.C.)
Richards, Mabel Edna,	Little Falls,	2 Arts
Richardson, Frank Howard, A.B.,	Brooklyn,	3 Med. (N.Y.C.)
Richardson, Harold Jay,	Lowville,	4 Arts
Rick, Charles Maderia,	Reading, Pa.,	4 Mech. Eng.
Rickard, Le Ray Sidney,	Cobleskill,	3 Civil Eng.
Ricketson, William Elbridge,	Plattsburg,	2 Mech. Eng.

Ridenour, John Schell,	<i>Bedford, Pa.,</i>	1 Mech. Eng.
Rider, Charles Alden,	<i>Rochester,</i>	1 Mech. Eng.
Rider, Florence Albertson,	<i>Washington, D. C.,</i>	Sp. Arts
Riegger, Wallingford Constantin,	<i>New York City,</i>	1 Arts
Rindsfoos, Charles Siezel,	<i>Circleville, O.,</i>	3 Civil Eng.
Rittenhouse, Charles Edwin,	<i>Washington, D. C.,</i>	1 Mech. Eng.
Ritzwoller, Eugene Max,	<i>Peoria, Ill.,</i>	4 Mech. Eng.
Roadhouse, Chester Linwood,	<i>Berkeley, Cal.,</i>	2 Veterinary
Roat, Grover Cleveland,	<i>Rushville,</i>	3 Mech. Eng.
Roats, Oley De Wayne,	<i>Three Mile Bay,</i>	Jr. Law
Robbins, John Loring,	<i>Great Barrington, Mass.,</i>	2 Mech. Eng.
Robert, LeRoy Clinton,	<i>Ordway, Colo.,</i>	3 Mech. Eng.
Roberts, Floy Howell,	<i>Ithaca,</i>	1 Arts
Roberts, James Louis,	<i>Hempstead,</i>	1 Agriculture
Roberts, Kenneth Lewis,	<i>Malden, Mass.,</i>	1 Arts
Robertson, George Cooke,	<i>Buffalo,</i>	4 Arts
Robertson, Ralph Kenyon, A.B.,	<i>Buffalo,</i>	Jr. Law
Robertson, Ralph Noyes, S.B.,	<i>Leadville, Colo.,</i>	4 Mech. Eng.
Robinson, Charles Albert, Jr., A.B.,	<i>Baltimore, Md.,</i>	3 Mech. Eng.
Robinson, Charles Francis,	<i>Modeltown,</i>	Sp. Agriculture
Robinson, George Garrett,	<i>Richfield Springs,</i>	Sr. Law
Robinson, Mary Huntingt,	<i>Ithaca,</i>	3 Med. (N. Y. C.)
Robinson, William Alexander,	<i>Sterling, Ill.,</i>	3 Mech. Eng.
Robinson, William Christopher,	<i>Holland Patent,</i>	4 Mech. Eng.
Robitzer, John Michael,	<i>Pittsburg, Pa.,</i>	Sp. Agriculture
Rocap, Charles Clarence,	<i>Plainfield, N. J.,</i>	2 Mech. Eng.
Rockwell, James Chapman,	<i>Syracuse,</i>	2 Mech. Eng.
Rockwood, Harry Langdon,	<i>Olean,</i>	2 Medicine
Roddewig, George Washington,	<i>Davenport, Ia.,</i>	3 Mech. Eng.
Rodgers, Ralph Chapman,	<i>Binghamton,</i>	4 Mech. Eng.
Roe, Ralph Burt,	<i>Ithaca,</i>	2 Arts
Roeder, Arthur,	<i>Orange, N. J.,</i>	1 Civil Eng.
Roesch, George William,	<i>Brooklyn,</i>	2 Arts
Roessel, Louis Carl Herman,	<i>Brooklyn,</i>	1 Mech. Eng.
Rogalsky, George Frederick,	<i>No. Tonawanda,</i>	1 Arts
Rogers, Clarence Ramsey,	<i>Corry, Pa.,</i>	4 Mech. Eng.
Rogers, Edgar,	<i>Sagaponack,</i>	3 Civil Eng.
Rogers, Edgar Allan,	<i>Salt Lake City, Utah,</i>	Sr. Law
Rogers, Henry Pliny, Jr.,	<i>Salamanca,</i>	3 Architecture
Rogers, Jerome Dwight,	<i>Penn Yan,</i>	Sr. Law
Rogers, Herman Leon,	<i>Stony Brook,</i>	1 Mech. Eng.
Rogers, Howard Maxwell,	<i>Sherborn, Mass.,</i>	2 Mech. Eng.

Rogers, Ola Dee, Ph.B.,	Arcanum, O.,	4 Arts
Rogers, William Woppard,	New York City,	4 Arts
Rohdenburg, George Louis,	New York City,	4 Med. (N.Y.C.)
Rohn, John Philip, Jr.,	Newark, N.J.,	1 Med. (N.Y.C.)
Roig, Harold Joseph,	Poughkeepsie,	2 Arts
Rollins, Mabel,	New York City,	1 Arts
Rolph, Thomas Willett,	Fredonia,	2 Mech. Eng.
Roney, William Wheeler,	New York City,	4 Mech. Eng.
Ronsheim, Joshua,	Brooklyn,	2 Med. (N.Y.C.)
Rood, Vaughn Wesley,	Etna,	1 Veterinary
Root, Louis Denman,	Syracuse,	1 Arts
Root, Lula May,	Hoosick Falls,	3 Arts
Rosbrook, Fred Eugene,	Watertown,	Jr. Law
Rosbrook, Ida Belle,	Watertown,	Jr. Law
Rose, Clarence Edward,	Little Rock, Ark.,	4 Mech. Eng.
Rose, Charles Price,	Friendship,	Jr. Law
Rose, Joseph Hanson,	Pittsburg, Pa.,	3 Arts
Rosén, Robert Rudolph,	Bridgeport, Conn.,	1 Civil Eng.
Rosenbaum, Leo Albert,	New York City,	1 Arts
Rosenberg, Leopold, M.D.,	Bedford Station, Sp. Med. (N.Y.C.)	
Rosenheim, Minna,	Baltimore, Md.,	4 Arts
Rosevear, Morris Burt,	Wharton, N.J.,	1 Mech. Eng.
Ross, George Hilliard,	Edgewater, N.J.,	3 Arts
Ross, Harold Ellis,	Smithboro,	3 Agriculture
Rossire, Henry Lansing,	Yonkers,	1 Mech. Eng.
Roszman, Allen M.,	Hudson,	4 Arts
Roszman, Richard,	Hudson,	2 Arts
Roth, Rodolfo,	Buenos Aires, Argentine Rep.,	2 Mech. Eng.
Rothenberg, Louis,	New York City,	1 Med. (N.Y.C.)
Rothkowitz, Joseph,	New York City,	3 Med. (N.Y.C.)
Roudebush, Roy Everett, A.B.,	Warren, Ind.,	2 Mech. Eng.
Rowe, Allie Ethel,	Hampton, Va.,	2 Arts
Rowe, Anson Hewitt,	Clarksville,	2 Agriculture
Rowland, Harry Shepard,	Montclair, N.J.,	3 Mech. Eng.
Rowland, Theodore Sherwood,	Greenport,	2 Arts
Rowland, William Samuel,	Washington, D.C.,	1 Arts
Rubinowitz, Alexander Hyman,	Brooklyn,	1 Med. (N.Y.C.)
Rubira, Adriano Woodruff,	Mobile, Ala.,	3 Mech. Eng.
Rudich, Mark,	Brooklyn,	Jr. Law
Rueck, Gustav Adolph,	South Byron,	2 Medicine
Ruhlen, George, Jr.,	Washington, D.C.,	2 Mech. Eng.
Ruiz, Henry Cecil,	Matanzas, Cuba,	3 Civil Eng.

Macangua

Runyon, Walter Clark, Jr.,	Cleveland, O.,	1 Mech. Eng.
Russell, Thomas Alexander,	McKeesport, Pa.,	2 Architecture
Russianoff, Max Jacob,	New York City,	3 Med. (N.Y.C.)
Rutherford, Harry William,	Waddington,	3 Civil Eng.
Ryan, Floyd Horace,	Cortland,	Sp. Agriculture
Ryan, Lawrence Marvin,	Syracuse,	1 Mech. Eng.
Ryan, Walter J. A.B.,	York, Nebr.,	3 Civil Eng.
Rymph, James Budd,	Hyde Park,	Sp. Agriculture
Ryon, Henry,	Brooklyn,	3 Civil Eng.
Sailor, George Raymond,	Swissvale, Pa.,	2 Mech. Eng.
Sailor, Horace Price,	Chicago, Ill.,	1 Mech. Eng.
Sailor, Robert Warren,	Chicago, Ill.,	2 Arts
Sainsbury, Noel,	South Orange, N.J.,	1 Civil Eng.
Salisbury, Myron Davis,	Hamburg,	2 Mech. Eng.
Salisbury, Orange James, Jr.,	Salt Lake City, Utah,	4 Mech. Eng.
Salisbury, Robert Walker,	Salt Lake City, Utah,	3 Mech. Eng.
Samuels, Robert Eugene,	Brooklyn,	1 Arts
Sanchez-Elia, Horacio,	Buenos Aires, Arg. Rep.,	1 Agr.
Sanders, Daniel Henry,	Cortland,	1 Civil Eng.
Sanford, Chester Milton,	Ithaca,	4 Arts
Sanford, Lester Morse, B.P.,	New York City,	4 Civil Eng.
Sarmiento, Arturo,	Buenos Aires, Agr. Rep.,	2 Mech. Eng.
Saulsbury, Henry Wilson, A.B.,	Denton, Md.,	3 Mech. Eng.
Sawai, Zenhichi Kitagun,	Ehime, Japan,	4 Agriculture
Saxton, Wilbur Sayre,	Binghamton,	2 Civil Eng.
Sayce, Archibald Herbert,	New York City,	4 Mech. Eng.
Sayles, Myron Edward,	Pittsfield, Mass.,	1 Mech. Eng.
Scarr, John, Jr.,	Paterson, N.J.,	4 Mech. Eng.
Schacht, Henry,	Brooklyn,	1 Arts
Schaedle, Charles Andrew,	Pittsburg, Pa.,	1 Mech. Eng.
Schaefer, Ernest Charles Augustus,	Liverpool,	1 Mech. Eng.
Schaefer, Joseph Harvey,	Liverpool,	2 Mech. Eng.
Schapiro, Samuel Hyman, A.B.,	Baltimore, Md.,	2 Mech. Eng.
Scheidenhelm, Fred William,	Mendota, Ill.,	3 Civil Eng.
Schein, Nathan,	Pittsburg, Pa.,	3 Civil Eng.
Schenck, Florence Marion,	Fulton,	3 Arts
Schenck, Paul Albert,	Denver, Colo.,	2 Mech. Eng.
Schieffelin, George Girard,	Stokesdale, Pa.,	Jr. Law
Schiff, Leo Francis,	Brooklyn,	3 Med. (N.Y.C.)
Schmid, Robert John,	Rochester, Minn.,	1 Civil Eng.
Schmidlapp, William Horace,	Cincinnati, O.,	3 Arts
Schmidt, Frederick Elmer,	Newark, N.J.,	2 Medicine

Schmidt, George John,	<i>Port Jervis,</i>	2 Mech. Eng.
Schmuck, Oliver LeRoy,	<i>Hanover, Pa.,</i>	2 Mech. Eng.
Schneider, Frederick,	<i>Bedford, O.,</i>	3 Mech. Eng.
Schnirel, Herman Ferdinand,	<i>Geneva,</i>	3 Arts
Schoellkopf, Paul Arthur,	<i>Niagara Falls,</i>	3 Arts
Schoellkopf, Walter Horton, C.E.,	<i>Buffalo,</i>	3 Mech. Eng.
Schoenijahn, Robert Polk,	<i>Brooklyn,</i>	3 Mech. Eng.
Schoff, Harold Kent,	<i>Philadelphia, Pa.,</i>	1 Mech. Eng.
Schreiber, Leonard George,	<i>Cincinnati, O.,</i>	1 Civil Eng.
Schultheis, Leopold,	<i>Brooklyn,</i>	1 Mech. Eng.
Schurman, Robert,	<i>Ithaca,</i>	2 Arts
Schwartz, Benjamin,	<i>New York City,</i>	2 Med. (N.Y.C.)
Schwartz, Frank Herbert,	<i>Albany,</i>	1 Arts
Schwartz, Leo Samson,	<i>New York City,</i>	1 Med. (N.Y.C.)
Schwartz, Otto, B.E.,	<i>New Orleans, La.,</i>	4 Mech. Eng.
Schwartz, Samuel Robert, A.B.,	<i>New York City,</i>	3 Mech. Eng.
Schwarz, J. Walter,	<i>Rochester,</i>	2 Mech. Eng.
Scofield, Herbert Henry,	<i>Bemus Point,</i>	4 Mech. Eng.
Scott, Alvah Alison,	<i>Hilo, H. T.,</i>	1 Mech. Eng.
Scott, James Herbert,	<i>Philadelphia, Pa.,</i>	1 Mech. Eng.
Scott, Mabel,	<i>Jackson, Miss.,</i>	3 Med. (N.Y.C.)
Scovill, Jennie Belle,	<i>New Hartford,</i>	1 Arts
Scranton, William Henry, A.B.,	<i>Scranton, Pa.,</i>	3 Mech. Eng.
Seaman, Benjamin White,	<i>Rockville Centre,</i>	2 Medicine
Seaman, Daniel Henry,	<i>Brooklyn,</i>	1 Civil Eng.
Seaman, Elizabeth Allen,	<i>Smithville South,</i>	2 Arts
Sears, Frank Martin,	<i>Holyoke, Mass.,</i>	2 Mech. Eng.
Seeley, Henry Arthur,	<i>Bridgeport, Conn.,</i>	1 Civil Eng.
Seelye, Blanche Eggleston,	<i>Ithaca,</i>	3 Arts
Seelye, Edward Eggleston,	<i>Ithaca,</i>	1 Civil Eng.
Seibert, Otto John,	<i>Newark, N. J.,</i>	1 Med. (N.Y.C.)
Seipp, Clarence Thies,	<i>Chicago, Ill.,</i>	1 Civil Eng.
Seipp, Edwin Alexander,	<i>Chicago, Ill.,</i>	4 Architecture
Seitz, Fred Gallagher,	<i>Philadelphia, Pa.,</i>	3 Mech. Eng.
Selden, Katharine Emily,	<i>Catskill,</i>	4 Arts
Sellstrom, Elmer Waldemar,	<i>Jamesstown,</i>	2 Civil Eng.
Selover, Queen Fidelia,	<i>Hornellsville,</i>	1 Arts
Senillossa, Julio,	<i>Buenos Aires, Arg. Rep.,</i>	1 Architecture
Serviss, Garrett Putnam, Jr.,	<i>Brooklyn,</i>	1 Arts
Seymour, Charles Mason,	<i>Chicago, Ill.,</i>	1 Mech. Eng.
Seymour, George Masters, Jr.,	<i>New York City,</i>	2 Mech. Eng.
Shafer, James C Forsythe,	<i>Montgomery,</i>	4 Civil Eng.

Shallenberger, Charles Moore,	Pittsburg, Pa.,	1 Civil Eng.
Shanks, Ethel Rollins,	Ithaca,	Sp. Agriculture
Shanly, Mary Edward,	Binghamton,	3 Arts
Shapero, Isador,	Syracuse,	2 Med. (N. Y. C.)
Sharp, Harry Lyman,	Buffalo,	1 Mech. Eng.
Sharp, Vern Adolphus,	Forest Home,	1 Veterinary
Shaw, Charles Frederick,	West Henrietta,	3 Agr.
Shaw, Charles Perrin,	Detroit, Mich.,	3 Mech. Eng.
Shaw, George Bradstreet,	Eau Claire, Wis.,	1 Mech. Eng.
Shaw, Norman Lowrie,	Glenshaw, Pa.,	4 Mech. Eng.
Sheffer, John Wesley,	Williamsport, Pa.,	2 Mech. Eng.
Sheffield, Frederick Duane,	Warsaw,	3 Arts
Sheffield, Katie Jane,	Warsaw,	1 Arts
Sheldon, Helen Griswold, A.B.,	Ithaca,	Sp. Agriculture
Sheldon, Pearl Gertrude,	Ithaca,	1 Arts
Sheldon, Thomas,	Poughkeepsie,	1 Veterinary
Sheldon, William Hills,	Auburn,	2 Med. (N. Y. C.)
Shepard, John Berdan,	Buffalo,	2 Agriculture
Shepard, Myron Sylvester,	Ithaca,	2 Civil Eng.
Shepherd, Alfred Willard,	Glendale, O.,	2 Mech. Eng.
Shepherd, Vera Louise,	Ithaca,	4 Arts
Sheppard, Carl Rogers,	Quincy, Mass.,	1 Law
Sheppard, Joel Fithian, 2nd,	Quincy, Mass.,	2 Mech. Eng.
Sherman, Frederick Elias,	Watkins,	2 Civil Eng.
Sherman, Stanton Cole,	Salem,	3 Arts
Sherwood, Nial,	Liberty,	1 Civil Eng.
Shields, William Dickinson,	Shields, Pa.,	2 Mech. Eng.
Shires, Henry Herbert,	Troy,	1 Mech. Eng.
Shoemaker, Seth Whitney,	New York City,	1 Arts
Shook, Raymond Calvin,	Youngstown, O.,	1 Mech. Eng.
Shope, Harry Stephenson,	Harrisburg, Pa.,	1 Mech. Eng.
Short, Stanley,	Clifton Springs,	1 Mech. Eng.
Shreve, Ralph Febrey,	Washington, D. C.,	3 Civil Eng.
Shryock, Edward Osborne,	Meadville, Pa.,	1 Mech. Eng.
Shull, Fred Grover,	Hammondsport,	2 Mech. Eng.
Shults, Altha Cemantha,	Freeville,	1 Arts
Shumway, Charlotte Everest,	Champlain,	2 Arts
Sibley, Samuel Dunham,	North Orwell, Pa.,	2 Mech. Eng.
Sickmon, May Christine,	Buffalo,	Sr. Law
Siebold, Albert Frank,	Buffalo,	2 Agr.
Siegel, Abram,	New York City,	2 Med. (N.Y.C.)
Siegel, Jacob Henry, Jr.,	Brooklyn,	1 Med. (N.Y.C.)

Sieling, Louis John,	Brooklyn,	2 Civil Eng.
Sill, William Eaton,	Sodus,	Sp. Arts
Sill, William Miller,	Jamestown,	3 Med. (N.Y.C.)
Silsbee, James Alfred,	Elmira,	2 Civil Eng.
Silverman, Alexander, Ph.B.,	Pittsburg, Pa.,	4 Arts
Simonds, Omar Howard,	Duluth, Minn.,	1 Mech. Eng.
Simmons, Alice Pendergast,	Gloversville,	3 Arts
Simmons, Solomon,	Cortland,	Sr. Law
Simmons, William Howard,	Oil City, Pa.,	4 Arts
Simonton, Ira Boyce, B.S.,	Jacksonville, Fla.,	2 Mech. Eng.
Simpson, Dwight Swain,	Powers, Minn.,	2 Mech. Eng.
Simpson, Ernest Lee,	Troupsburg,	2 Veterinary
Simpson, Ray Clinton,	Vincennes, Ind.,	4 Agriculture
Simpson, Reuben Spencer,	Oswego,	1 Medicine
Sindel, Benjamin,	New York City,	2 Med. (N.Y.C.)
Skidmore, George Harrison,	Riverhead,	1 Architecture
Skidmore, Louise Binney,	Philadelphia, Pa.,	1 Arts
Skillman, Verne,	Newark, N. J.,	1 Arts
Skilton, Avery Wadsworth,	Rockville Centre,	1 Medicine
Skinner, Albert Merriman,	Albany,	1 Architecture
Skinner, Alice Adeline,	Oswego,	1 Arts
Skinner, Emma Frances,	Ithaca,	1 Arts
Slauson, Harold Whiting,	Middletown,	3 Mech. Eng.
Slauson, Kinsley Wilcox,	Middletown,	2 Arts
Sleeth, Montgomery,	Wilmertding, Pa.,	1 Mech. Eng.
Sleicher, Ralph Herbert,	Troy,	Sp. Agriculture
Sliter, Harold Male,	Elmira,	1 Mech. Eng.
Sloan, Ben,	Greenville, S. C.,	2 Mech. Eng.
Sloan, Robert Shunk,	Ithaca,	Jr. Law
Sloat, John Allen,	Watertown,	1 Civil Eng.
Slocum, Chester Arthur,	Long Branch, N. J.,	3 Mech. Eng.
Slocum, Chester Colt,	Scottsville,	2 Mech. Eng.
Slocum, Rob Roy,	Ithaca,	2 Agriculture
Slutsky, Nathan Israel,	Brooklyn,	2 Med. (N.Y.C.)
Slutzker, Joseph,	Altoona, Pa.,	1 Mech. Eng.
Sly, Frederic Sanford,	Fredonia,	1 Mech. Eng.
Smallman, Ralph Alcorn,	Wauseon, O.,	1 Civil Eng.
Smiley, Arthur Rose,	Brooklyn,	3 Arts
Smiley, Bertha Emily,	Ithaca,	1 Arts
Smith, Alice Gertrude,	Ithaca,	4 Arts
Smith, Amos Bird,	Cazenovia,	2 Mech. Eng.
Smith, Anna LaVerne,	Sidney,	4 Arts

Smith, Catherine,	Rensselaer,	1 Arts
Smith, Chester Allan,	Decatur, Ill.,	Jr. Law
Smith, Clyde Edwin,	Lodi,	1 Veterinary
Smith, David Theodore,	Brooklyn,	1 Law
Smith, Edwin Kennedy,	Nashville, Tenn.,	3 Mech. Eng.
Smith, Elizabeth Allen,	Olean,	2 Arts
Smith, Fletcher Eugene,	Ithaca,	2 Veterinary
Smith, Florence Givens,	Ithaca,	1 Arts
Smith, Florence Katharine,	Ithaca,	2 Arts
Smith, Florence May,	Trumansburg,	2 Arts
Smith, Frank Garretson,	Brooklyn,	1 Mech. Eng.
Smith, Fred Wadsworth,	Iliion,	1 Mech. Eng.
Smith, Giles Milton,	Utica,	1 Architecture
Smith, Harlow Duane,	Fayetteville,	Sp. Agriculture
Smith, Harry Coleman,	Canisteo,	1 Civil Eng.
Smith, Harry Edwin,	Ithaca,	4 Mech. Eng.
Smith, Harry George,	Buffalo,	2 Mech. Eng.
Smith, Henry Edmond,	Baltimore, Md.,	3 Civil Eng.
Smith, Howard Charles,	Ithaca,	4 Arts
Smith, Howard Eugene,	Provo, Utah,	Sp. Mech. Eng.
Smith, John Homer,	Brewster,	4 Arts
Smith, John VanWagner,	White Plains,	4 Med. (N. Y. C.)
Smith, Lawrence Ross,	Arcade,	2 Civil Eng.
Smith, Lewis Raymond,	Greene,	1 Arts
Smith, Mark Elmer,	Erie, Pa.,	1 Mech. Eng.
Smith, Mary Porter,	Adams,	4 Arts
Smith, Morgan Babcock,	Syracuse,	4 Arts
Smith, Ralph Brady,	Aurora, Ill.,	2 Mech. Eng.
Smith, Robert Armstrong, Jr.,	Brooklyn,	4 Mech. Eng.
Smith, Rufus Daniel,	Richmond Hill,	2 Arts
Smith, Samuel Newell, Jr.,	New York City,	4 Med. (N.Y.C.)
Smith, Stanley Delancy,	Springville,	1 Law
Smith, Victor Edward,	Bayonne, N. J.,	1 Mech. Eng.
Smith, Warren George,	Oneonta,	3 Med. (N.Y.C.)
Smith, William Burritt,	Newfield,	2 Veterinary
Smithe, Percy Allis Winans, A.B.,	New York City,	4 Med. (N.Y.C.)
Sneckenberger, Earl Miner, B.Ph.,	Tiffin, O.,	4 Civil Eng.
Snider, Howard Lee,	Cleveland, O.,	1 Arts
Snider, Warner Garfield,	Cleveland, O.,	4 Mech. Eng.
Snow, Arch Miller,	Boonville,	2 Civil Eng.
Snow, Marjorie,	Fairport,	1 Arts
Snowden, William Hugh,	New York City,	Sr. Law

Snowdon, Florence,	Sp. Agriculture
Snyder, Alfred,	2 Mech. Eng.
Snyder, Floyd Christian,	3 Mech. Eng.
Snyder, Harold Jay,	3 Veterinary
Snyder, John,	4 Architecture
Snyder, Leo Harter,	3 Mech. Eng.
Sobierski, Alfred,	1 Civil Eng.
Soch, Emma Marion,	4 Agriculture
Somerville, John Snape,	1 Arts
Sonnenberg, Jerome,	2 Med. (N.Y.C.)
Sophian, Abraham,	3 Med. (N.Y.C.)
Southerland, Frederic Jewell,	1 Mech. Eng.
Southworth, Claire Louise,	1 Arts
Spaide, Rolland Lee,	1 Arts
Spanalding, Harry Vanness,	1 Med. (N.Y.C.)
Spanogle, Donald Bare,	1 Mech. Eng.
Spears, Eldridge Anson,	2 Arts
Specht, William Henry, D.D.S.,	3 Med. (N.Y.C.)
Speed, Beasie Frances,	3 Arts
Speed, Lorenzo Dowe,	4 Mech. Eng.
Spelman, William Angell,	1 Civil Eng.
Spencer, George Lawton, M.E.,	Provvidence, R. I., Sp. Mech. Eng.
Spencer, Oliver Chancy,	Seattle, Wash., 1 Mech. Eng.
Spencer, Robert Jones,	Brooklyn, 1 Arts
Sperry, Charles Louis,	North Adams, Mass., 2 Civil Eng.
Speyer, Elwin Gerald,	Buffalo, 2 Civil Eng.
Spitzer, Harry,	New York City, 1 Med. (N.Y.C.)
Spooner, Charles Stockman,	Middletown, 2 Arts
Spring, Carrollton Crawford,	Tompkinsville, 2 Civil Eng.
Squier, Clarence Cecil,	Ithaca, Sr. Law
Squier, Courtney Arthur,	Ithaca, 1 Law
Staats, Edward Pomeroy,	Cooperstown, 4 Mech. Eng.
Stafford, James Prendergast,	Jamestown, Sr. Law
Stafford, Roslyn John,	New Lisbon, 2 Veterinary
Stanton, Grove Ansel,	Auburn, 2 Civil Eng.
Stark, George William,	Little Falls, 3 Med. (N.Y.C.)
Stark, James Harrington,	Buffalo, Sp. Agriculture
Starr, Albert Birdsey,	East Hampton, Conn., 2 Mech. Eng.
Starr, Arthur,	Sewickley, Pa., 3 Mech. Eng.
Startz, Benjamin,	New York City, 3 Med. (N.Y.C.)
Stearns, Helen Maria,	Norwich, Conn., 1 Arts
Stearns, John,	Denver, Colo., 3 Civil Eng.

Stechman, Frederick William,	New York City,	4 Med. (N.Y.C.)
Stecker, Margaret Loomis,	Mt. Vernon,	3 Arts
Steele, Edward Albert,	Philadelphia, Pa.,	3 Mech. Eng.
Steen, Carl Waldemar,	Christiania, Norway,	1 Mech. Eng.
Stehli, Edgar,	Montclair, N.J.,	2 Arts
Stein, Adelaide Estelle,	Batavia,	1 Arts
Stein, Herbert Edward,	New York City,	4 Med. (N.Y.C.)
Steinbugler, William Francis,	New York City,	1 Med. (N.Y.C.)
von Steinwehr, Fred,	Cincinnati, O.,	3 Arts
Stephens, Fitch Hibbard,	Ithaca,	Sr. Law
Stephens, Floyd C.,	Clifton Springs,	1 Mech. Eng
Stephenson, Hermann,	Ithaca,	2 Mech. Eng.
Stern, Harold Gross,	Spokane, Wash.,	2 Mech. Eng.
Stevens, Alexander Chilson,	New York City,	2 Mech. Eng.
Stevens, John Hoyt,	Rome,	1 Civil Eng.
Stevens, Madge Arthur,	Philadelphia, Pa.,	4 Arts
Stevens, William Clifford,	Portland, Me.,	3 Mech. Eng.
Stevenson, Hector Morrison,	Queens,	2 Med. (N. Y. C.)
Stewart, Donald,	Brooklyn,	1 Mech. Eng.
Stewart, Homer Edgar, Jr.,	Warren, O.,	2 Mech. Eng.
Stewart, Harry Kennedy,	Wichita, Kansas,	1 Mech. Eng.
Stewart, Margaret Miles,	Troy,	1 Arts
Stewart, Sidney Vander Veer,	Morrisville,	2 Mech. Eng.
Stewart, Walter Phelps,	Rochester,	2 Civil Eng.
Stillman, Austin Frank,	Brooklyn,	2 Mech. Eng.
Stillman, Edwin Arthur,	Brooklyn,	1 Mech. Eng.
Stillson, George Doremus,	Buffalo,	1 Medicine
Stimpson, Earl Bristol,	Walton,	2 Architecture
Stimson, Thomas Douglas,	Seattle, Wash.,	Sp. Agriculture
Stirling, Vincent Reynolds,	Ithaca,	4 Civil Eng.
Stockdale, Thomas Ringland,	Summit, Miss.,	1 Civil Eng.
Stockler, Bernhard.	Focsany, Roumania,	Sp. Agriculture
Stoddart, David Ayars,	Wilkes-Barre, Pa.,	1 Mech. Eng.
Stolte, Johanna Cathrine,	Mt. Vernon,	4 Arts
Stone, Margaret Atwell,	Ithaca,	1 Arts
Stone, Roy Lynne,	Potsdam,	1 Mech. Eng.
Storm, Walter Woolsey,	Wilmington, N.C.,	1 Mech. Eng.
Storer, Lyell,	Morton,	1 Mech. Eng.
Storz, Joseph Frank,	Wilkes-Barre, Pa.,	3 Civil Eng.
Stoughton, Elisabeth Alden,	Hartford, Conn.,	3 Arts
Stowell, William Stuart,	Elmira,	2 Mech. Eng.
Strahan, Ray Thomas,	Friendship,	1 Law

Strang, Emma Florence,	Waterloo,	1 Arts
Straus, Joseph Henry, Jr.,	Baltimore, Md.,	4 Architecture
Stroud, Bert Brenette, B.S., D.Sc.,	Ithaca, N.Y.C.	3 Med. (N.Y.C.)
Stryke, Anna Clegg,	Philadelphia, Pa.,	1 Arts
Stuart, William Charles, Jr.,	Irvington,	1 Civil Eng.
Stuckmann, Laura Marie,	Bloomingdale,	2 Arts
Stull, Charles Rodman,	Ridley Park, Pa.,	1 Mech. Eng.
Sturdevant, James Hiram,	Ithaca,	4 Civil Eng.
Sturge, John Howard,	Rochester,	1 Mech. Eng.
Sturges, Harold Alexander,	Saratoga Springs,	1 Mech. Eng.
Sturgis, Blaine Fred,	Medina,	1 Law
Sturgis, William Bayard,	New York City,	1 Mech. Eng.
Stutz, Harry George,	Albany,	Jr. Law
Sullivan, Eugene Joseph,	Saratoga Springs,	2 Veterinary
Summer, Wilhelm Carl, A.B.,	Newberry, S.C.,	3 Mech. Eng.
Sumner, Grover Cleveland,	Brooklyn,	2 Mech. Eng.
Sumner, William Bartlett,	Buffalo,	Jr. Law
Sunstein, Leon Cleveland,	Allegheny, Pa.,	3 Arts
Sutton, Frank Edgar,	Hillsboro, N.Dakota,	3 Mech. Eng.
Sutton, Frederick A.,	Hackettstown, N.J.,	2 Med. (N.Y.C.)
Sutton, Henry Craig,	Haverford, Pa.,	1 Mech. Eng.
Swaine, James Malcolm,	Truro, N.S., Canada,	4 Agr.
Sweeney, Clarence Sebastian,	Indianapolis, Ind.,	1 Law
Swett, Raymond Fuller,	Medina,	1 Arts
Swick, Charles Humphrey,	Livonia,	2 Mech. Eng.
Swick, Clarence Herbert,	Ransomville,	2 Civil Eng.
Swift, Pemberton Reno,	Ridgway, Pa.,	2 Mech. Eng.
Swigert, William Edwin,	Carbondale, Pa.,	1 Mech. Eng.
Swiggett, Edward Mansfield,	Morrow, O.,	3 Agriculture
Swinney, Robert Ethan,	De Ruyter,	1 Civil Eng.
Swisher, Donald DeWitt, A.B.,	Danville, Ill.,	1 Architecture
Sylvester, Louis George,	Scranton, Pa.,	1 Arts
Sze, Soa Chiany Thomas,	Shanghai, China,	4 Mech. Eng.
Taber, Edmund Rhett, Jr., B.S.,	Montgomery, Ala.,	4 Mech. Eng.
Tailby, George Walter, Jr.,	Ithaca,	3 Agriculture
Takami, Tayohiko Campbell,	Tuboy, Kumamoto, Japan,	3 Med. (N.Y.C.)
Tallman, Carl Cornwell,	Auburn,	2 Architecture
Tappan, Frank Girard, A.B.,	Circleville, O.,	1 Mech. Eng.
Tappey, Howard Pomfret,	Liberty,	2 Mech. Eng.
Tarbell, Clarence D.,	Ithaca,	Sp. Law
Taussig, John Wright,	St. Louis, Mo.,	1 Civil Eng.

Tavener, Frank Lucius, B.C.E.,	Lewiston, Mont.,	4 Mech. Eng.
Taylor, Charles Henry,	Camillus,	3 Veterinary
Taylor, Donald West,	St. Paul, Minn.,	1 Arts
Taylor, Earl MacNair,	Scranton, Pa.,	2 Arts
Taylor, George Herrick,	Amsterdam,	1 Arts
Taylor, Hayes Clark,	Doe Run, Pa.,	4 Agriculture
Taylor, Nelson Vinton,	Salisbury, No. Car.,	4 Arts
Taylor, Wickham,	Norfolk, Va.,	1 Architecture
Taylor, Walter Jennings,	Ithaca,	2 Veterinary
Taylor, William Gorton,	Middletown,	2 Mech. Eng.
Taylor, William Winthrop,	Brooklyn,	Jr. Law
Tefft, Hester Pardee,	Little Falls,	4 Arts
Teller, Spencer Jay,	Unadilla,	3 Mech. Eng.
Temple, Herbert Asher,	Seneca,	3 Mech. Eng.
Tenney, Albert Seward,	Tientsin, China,	3 Arts
Terrazas-Sujan, Juan Francisco,	Chihuahua, Mexico,	Sp. Agr.
Terry, Alvah Lamar,	Louisville, Ky.,	1 Mech. Eng.
Terwilliger, Florence Shipley,	Ellenville,	1 Arts
Thatcher, Romeyn Yatman,	Buffalo,	1 Arts
Thayer, Frank Garfield,	Holyoke, Mass.,	Sp. Agriculture
Theall, Zaidee Isabelle,	Chelsea, Mass.,	1 Arts
Thomas, Allen Job,	Greenwich,	1 Law
Thomas, Belle,	New York City,	2 Medicine
Thomas, Edwin Randolph,	Woonsocket, R. I.,	1 Civil Eng.
Thomas, John Rader,	Hokendauqua, Pa.,	1 Mech. Eng.
Thomas, John Thomas,	Scranton, Pa.,	1 Mech. Eng.
Thomas, Joseph Edge,	Darlington, Md.,	1 Mech. Eng.
Thomas, Owen Alexander,	Oakmont, Pa.,	2 Mech. Eng.
Thomas, Royal David,	Oakmont, Pa.,	3 Mech. Eng.
Thompson, Alexander Holt,	Sherman, Tex.,	Jr. Law
Thompson, Charles Lewis,	Otselic,	3 Mech. Eng.
Thompson, Eustis Henry,	Baltimore, Md.,	4 Mech. Eng.
Thompson, Elmer Lee,	Trumansburg,	Sp. Law
Thompson, F Van,	Marcellus,	3 Arts
Thompson, George Roger,	Glens Falls,	1 Architecture
Thompson, Harry Ashton,	New York City,	1 Civil Eng.
Thompson, Hoxie Harry, B.S.,	Sherman, Tex.,	4 Civil Eng.
Thompson, Mulford Conklin,	Attlebury,	3 Veterinary
Thomson, Archibald Wilson,	Englewood, N. J.,	1 Medicine
Thomson, Charles Goff,	Little Falls,	1 Veterinary
Thomson, Ira Reed,	Holland Patent,	2 Mech. Eng.
Thorne, Alma Rosa,	Leeds,	1 Arts

Thorne, John Kneeland,	<i>Skaneateles,</i>	2 Arts
Thrall, William Austin, Jr.,	<i>Chicago, Ill.,</i>	3 Mech. Eng.
Thro, William Crooks, B.S.A., A.M.,	<i>Elmira,</i>	2 Medicine
Throckmorton, John Bayard,	<i>Red Bank, N. J.,</i>	1 Mech. Eng.
Throop, Henry Grosvenor,	<i>Lebanon,</i>	3 Civil Eng.
Thurber, Carryl Nelson,	<i>Jamaica,</i>	1 Arts
Thurber, Donald Mac Donald,	<i>Detroit, Mich.,</i>	1 Law
Thurston, Mather Francis,	<i>Hamburg,</i>	1 Arts
Tibbets, Harland Bryant, A.B.,	<i>Ithaca,</i>	Jr. Law
Tibirica, Joao,	<i>Sao Paulo, Brazil,</i>	1 Agriculture
Tichenor, Elmore Drane,	<i>New Orleans, La.,</i>	2 Mech. Eng.
Tietze, Samuel,	<i>New York City,</i>	3 Med. (N.Y.C.)
Tiffany, Edward Lewis,	<i>Norwich,</i>	1 Mech. Eng.
Tiffany, Nathan Newton,	<i>Bridge Hampton,</i>	4 Civil Eng.
Tiffany, Stephen Ralph,	<i>Willow Point,</i>	Jr. Law
Tileston, Arthur,	<i>St. Cloud, Minn.,</i>	1 Mech. Eng.
Tillou, Harris Baker,	<i>Buffalo,</i>	1 Veterinary
Tillson, Charles Burritt,	<i>Maple Grove,</i>	Sp. Agriculture
Timmerman, Ray,	<i>Fort Plain,</i>	3 Mech. Eng.
Tinkler, John, Jr.,	<i>Deposit,</i>	4 Arts, 2 Medicine
Tinnin, Dave Foster,	<i>Paris, Texas,</i>	1 Mech. Eng.
Titus, Wetmore Holloway,	<i>Plainfield, N. J.,</i>	4 Mech. Eng.
Toan, Lewis Austin,	<i>Perry,</i>	1 Medicine
Todd, Clarence Lionel,	<i>Beaver, Pa.,</i>	1 Civil Eng.
Todd, John William,	<i>Pittsburg, Pa.,</i>	3 Mech. Eng.
Todd, Leona Estelle, A.B.,	<i>Ovid,</i>	4 Med. (N.Y.C.)
Todd, Otis Howard,	<i>Griffin Corners,</i>	1 Civil Eng.
Todd, William Van Ness,	<i>Powerville, N. J.,</i>	Sp. Agriculture
Tolin, Richard Morton,	<i>Indianapolis, Ind.,</i>	4 Arts
Tolles, Frank Clifton,	<i>Brooklyn,</i>	4 Civil Eng.
Tompkins, George Ricks,	<i>Buffalo,</i>	2 Mech. Eng.
Tomkins, William,	<i>Brooklyn,</i>	1 Med. (N.Y.C.)
Toms, Raymond Ezra,	<i>Frederick, Md.,</i>	2 Civil Eng.
Tong, Yau Hang,	<i>Canton, China,</i>	1 Agriculture
Topping, Elizabeth Russell,	<i>Ithaca,</i>	3 Arts
Tourison, Charles Edward,	<i>Philadelphia, Pa.,</i>	4 Arts
Tousey, Thomas Grant,	<i>Pittsford,</i>	3 Med. (N.Y.C.)
Town, Clarence Adelbert,	<i>Syracuse,</i>	1 Veterinary
Townsend, Clarence Ellsworth,	<i>Painted Post,</i>	2 Mech. Eng.
Townsend, Frederick Barrett,	<i>New York City,</i>	1 Mech. Eng.
Townsend, Russell Everett,	<i>Ithaca,</i>	Sp. Agriculture
Tracy, John Cadman,	<i>Hudson,</i>	1 Arts

Tracy, Walter Hoyt,	Towanda, Pa.,	4 Civil Eng.
Traum, Jacob,	New York City,	3 Veterinary
Trautschold, Gordon Manfred,	Montclair, N. J.,	3 Architecture
Travers, Henry Adelbert,	Saratoga Springs,	1 Mech. Eng.
Treat, Sidney Wellington,	New York City,	2 Mech. Eng.
Treman, Emmett Taber,	Ithaca,	1 Civil Eng.
Treman, Walter,	Ithaca,	3 Veterinary
Trimbey, Edward James,	Washington Mills,	4 Mech. Eng.
Tripp, Donald Hatfield,	North Vernon, Ind.,	1 Civil Eng.
Tripp, Harry Hollister,	Medina,	1 Civil Eng.
Trorlicht, Oscar Albert,	St. Louis, Mo.,	2 Mech. Eng.
Trott, John Winslow,	Niagara Falls,	1 Mech. Eng.
Trube, Herbert Lawrence,	Hastings-on-Hudson,	1 Mech. Eng.
Trumbull, James Alexander,	Ithaca,	Jr. Law
Trumbull, Roscoe Hale,	Denver, Colo.,	2 Civil Eng.
Tryon, William Louis,	Schenectady,	1 Mech. Eng.
Tuck, Charles Henry,	Ogdensburg,	3 Arts
Tucker, Edson Jay,	Buffalo,	1 Law
Tudela, Gabriel,	Lima, Peru,	3 Mech. Eng.
Tuerk, Frederick Samuel,	Fulton,	2 Mech. Eng.
Tufts, Louis Rex,	Vernon,	Sp. Agriculture
Tupper, Roy Valentine,	Jersey City, N. J.,	1 Med. (N.Y.C.)
Turner, Benjamin Coe,	Scriba,	Jr. Law
Turner, George Follett,	Brooklyn,	3 Arts
Turner, Robert Patterson,	St. Louis, Mo.,	1 Mech. Eng.
Turner, Ralph Coit,	Marietta, O.,	2 Mech. Eng.
Turner, Robert Tiffet, Jr.,	Elmira,	1 Arts
Turner, William Joel, B.A.,	Lexington, Va.,	2 Civil Eng.
Tuttle, Charles Le Roy,	Rochester,	2 Mech. Eng.
Tydeman, Stephen James,	Bloomfield, N. J.,	2 Mech. Eng.
Tyler, Caleb Ridgway,	Sewell, N. J.,	2 Mech. Eng.
Uihelein, Herman Alfred,	Milwaukee, Wis.,	1 Mech. Eng.
Uihelein, Robert August,	Milwaukee, Wis.,	Sr. Law
Ullmann, Ralph Williams,	Oak Park, Ill.,	1 Mech. Eng.
Ulrich, Carl Oscar William,	Ozone Park,	1 Civil Eng.
Umstad, Wilfred LeRoy,	Norristown, Pa.,	1 Mech. Eng.
Underhill, George Gardner,	Albany,	3 Civil Eng.
Underwood, Harold Barnes,	Jamestown,	2 Mech. Eng.
Underwood, Harry Gregory,	New York City,	Sr. Law
Underwood, Helen Willoughby,	New York City,	3 Arts
Underwood, Paul Halladay,	Ludlowville,	2 Civil Eng.
Unger, Max,	New York City,	1 Med. (N.Y.C.)

Urner, Jonas Paul,	4 Civil Eng.
Usher, John Bloomfield,	1 Mech. Eng.
Vail, Roger Sherman,	3 Arts
Valladares, Antenor,	2 Mech. Eng.
Van Buren, William Ralph,	2 Arts
Vanderveer, Stephen Lott,	1 Arts
Vanderwater, Holmes,	1 Law
Van Devanter, Elliot,	1 Civil Eng.
Van Doren, Rolla,	Sp. Agriculture
Van Fleet, Herman H.,	1 Mech. Eng.
Van Kirk, Gaylord Bacon,	1 Law
Van Nostrand, Leonard Green,	3 Mech. Eng.
Van Orman, Ray,	1 Veterinary
Van Ostrand, Arthur Olin,	1 Veterinary
Van Vorst, Julian Purse,	3 Mech. Eng.
Van Winkle, Walton,	3 Mech. Eng.
de Varona, Joseph Leo,	4 Med. (N.Y.C.)
Vatet, Oscar Valentine,	4 Architecture
Vaughan, Ernest Marsters,	3 Med. (N.Y.C.)
Vaughan, Ralph,	2 Architecture
Vawter, William Arthur, 2nd,	4 Arts
Veith, George John,	1 Med. (N.Y.C.)
Vencill, Albert Leander,	2 Mech. Eng.
Vernon, Richard Henry,	1 Arts
Veve, Santiago,	2 Civil Eng.
Viertels, Ephraim, B.S.,	4 Civil Eng.
Vilimek, Joseph, M.D.,	Sp. Med. (N.Y.C.)
Vincent, Charles Ray,	1 Mech. Eng.
Vincent, Sidney Coombe,	4 Mech. Eng.
Vinton, Josephine C.,	New York City, Sp. Med. (N.Y.C.)
Von Engeln, Oscar Diedrich,	1 Arts
Vonnegut, Anton,	4 Mech. Eng.
Vonnegut, Arthur,	3 Arts
Vosburgh, Chloe,	4 Arts
Vosburgh, Claude Garfield,	1 Civil Eng.
Wager, Max Louis,	1 Med. (N.Y.C.)
Wagner, Effingham Buckley,	3 Mech. Eng.
Wait, William Barker,	1 Mech. Eng.
Wait, Luther Ashton,	Jr. Law
Waite, Mary Violet,	4 Arts
Waite, Ralph Waldo,	Sp. Agriculture
Walbran, Christopher James,	3 Mech. Eng.

Waldie, Thomas Edward,	Brooklyn,	2 Med. (N.Y.C.)
Walker, Alexander, Jr.,	Auburn,	2 Medicine
Walker, Alfred Augustus,	Birmingham, Ala.,	4 Med. (N.Y.C.)
Walker, Archie Dean,	Minneapolis, Minn.,	3 Mech. Eng.
Walker, Fernando Murray, A.B.,	Cordoba, Arg. Rep.,	4 Mech. Eng.
Walker, Harry Abram,	Ithaca,	4 Med. (N.Y.C.)
Walker, Jessie Crockett,	Brooklyn,	2 Arts
Walker, Lester Vincent,	Babylon,	1 Arts
Walker, William Joseph, A.B.,	New York City,	1 Med. (N.Y.C.)
Wall, Eleanor Gertrude,	Ithaca,	4 Arts
Wallace, Errett,	West Gore, N. S., Canada,	Sp. Agriculture
Wallace, James Garfield,	Batavia,	1 Veterinary
Wallace, William Lewis, Jr.,	Orange, N. J.,	3 Mech. Eng.
Wallach, William Isidore,	New York City,	3 Med. (N.Y.C.)
Wallis, Frank Gilbert,	Westfield, Pa.,	1 Mech. Eng.
Walsh, James Lawrence,	East Boston, Mass.,	1 Civil Eng.
Walsh, William Edward,	Marcellus,	3 Med. (N.Y.C.)
Walzer, Abraham,	Brooklyn,	1 Med. (N.Y.C.)
Wankel, George Canning,	Utica,	4 Med. (N.Y.C.)
Wanless, Richard, D.O.,	Geneva,	1 Medicine
Ward, Grace Landers,	Buckland, Mass.,	2 Arts
Ward, Harry Jay,	Peoria, Ill.,	1 Civil Eng.
Wardwell, Arthur Soper,	Rome,	3 Mech. Eng.
Wardwell, Harold Fletcher,	Rome,	2 Architecture
Ware, Robert Rea,	Chicago, Ill.,	1 Law
Wareham, David Howard,	Omaha, Nebr.,	1 Law
Waring, William Wallace,	Franklinville,	2 Arts
Warner, Austin McRaven, A.B.,	Vicksburg, Miss.,	4 Mech. Eng.
Warner, Earle Spear, B.L.,	Clifton Springs,	Sr. Law
Warner, Harold Saleno,	Buffalo,	4 Arts
Warner, Raymond Curtis,	Chicago, Ill.,	1 Mech. Eng.
Warren, Chester Ingersoll,	Troy,	4 Mech. Eng.
Warren, David Mack,	Chicago, Ill.,	1 Mech. Eng.
Warren, Everett Thomas,	Groton, Mass.,	1 Veterinary
Warren, George Sessions,	Worcester, Mass.,	4 Mech. Eng.
Wasch, Milton Goodman,	Brooklyn,	4 Med. (N. Y. C.)
Waterbury, Warren C.,	Whitesboro,	4 Arts
Waters, Ernest Joseph Hill,	Sydney, Australia,	2 Mech. Eng.
Watkins, Robert Eugene,	Ithaca,	1 Veterinary
Watkins, Warner Merriwether, B.S.,	Milton, N. C.,	3 Mech. Eng.
Watson, Richard Pierrepont,	Plattsburg,	1 Law
Watson, William Harry,	Pittston, Pa.,	Sp. Mech. Eng.

Watt, Marold Woodruff,	Wilkes-Barre, Pa.,	2 Mech. Eng.
Watt, Homer Andrew,		3 Arts
Way, Cassius, B.Agr.,		1 Arts
Weatherlow, Hugh Edgar,	Yorkshire,	2 Civil Eng.
Weaver, Fred George,	Deerfield,	Sp. Agriculture
Weaver, Henry Earle,	Utica,	1 Arts
Weaver, Philip Devers,	Bellevue, Pa.,	1 Civil Eng.
Weaver, Philip Victor,	Brooklyn,	3 Veterinary
Webb, Seth William,	Sugar Hill,	3 Civil Eng.
Weber, Arthur Brothers,	Buffalo,	Jr. Law
Weber, Florenz Pauline, M.E.,	Jamestown,	Sp. Arts
Weber, Rudolf Lorenz,	Paterson, N.J.,	4 Mech. Eng.
Weber, Salo, A.B.,	New York City,	1 Med. (N.Y.C.)
Webster, Blakely Rayce,	Middletown,	2 Medicine
Webster, George Pillsbury,	Cazenovia,	2 Mech. Eng.
Webster, Louis David,	Ilion,	1 Mech. Eng.
Webster, Stanley Adams,	Montclair, N.J.,	1 Arts
Wechsler, Joseph,	New York City,	2 Mech. Eng.
Wechsler, Philip,	New York City,	1 Med. (N.Y.C.)
Weed, Alfred Cleveland,	New Hartford,	4 Arts
Weed, Ruth May,	North Rose,	3 Arts
Weed, Ruth Sarissa,	North Rose,	2 Arts
Weedon, Wilfred Arthur,		
	Brisbane, Queensland, Australia,	2 Mech. Eng.
Wegman, Dominicus Charles,	Jersey City, N.J.,	1 Med. (N.Y.C.)
Weil, Helene,	Goldsboro, N.C.,	4 Arts
Weinberger, Henry Harry,	New York City,	1 Med. (N.Y.C.)
Weiner, Edwin Morris Richard,	Kingston,	3 Mech. Eng.
Weinstein, Henry,	New York City,	2 Med. (N.Y.C.)
Welch, Leon Cowles,	Greene,	1 Mech. Eng.
Welch, Stewart Henry, A.B.,	Uniontown, Ala.,	2 Medicine
Weldgen, Nicholas John,	Batavia,	Sr. Law
Wellbery, Edward Montgomery,	Buffalo,	2 Medicine
Weller, Arthur Douglas,	Cincinnati, O.,	1 Arts
Weller, Byron McNeil,	Geneseo,	1 Veterinary
Weller, Nellie Frances,	Ilion,	3 Arts
Welles, Edward Murray,	Addison,	4 Arts, 2 Medicine
Welles, George Edward,	Big Flats,	2 Mech. Eng.
Wells, Wayne Bagley,	Wellsville, O.,	2 Mech. Eng.
Welsh, Everett Cartwright,	Philadelphia, Pa.,	4 Mech. En
Welsh, Thomas Whitney	Montclair, N.J.,	Sp. Agriev
Wenham, Russell Pelton,	Cleveland, O.,	1

Werner, Rudolph Charles, Jr.,	<i>Brooklyn,</i>	1 Mech. Eng.
Wesson, Douglas Bertram,	<i>Springfield, Mass.,</i>	2 Mech. Eng.
West, Ralph McNaughton,	<i>Peoria, Ill.,</i>	Sp. Mech. Eng.
West, Ray Benedict, B.S.,	<i>Ogden, Utah,</i>	3 Civil Eng.
West, Livingston Dominick,	<i>Buffalo,</i>	2 Mech. Eng.
Westover, Harvey Leroy,	<i>Austerlitz,</i>	3 Agriculture
Weter, Leo Aloysius,	<i>Buffalo,</i>	Jr. Law
Wetherbee, Ashur Url,	<i>Ithaca,</i>	1 Mech. Eng.
Wheeler, George Whiting,	<i>Buffalo,</i>	2 Med. (N.Y.C.)
Wheeler, Merton Rone,	<i>Salt Lake City, Utah,</i>	2 Mech. Eng.
Wheeler, Portius Rollin,	<i>Peoria, Ill.,</i>	3 Arts
Whipple, John Blaine,	<i>Ithaca,</i>	2 Civil Eng.
Whitcomb, Don Salmon,	<i>Brooklyn,</i>	1 Arts
White, Alfred Winfield,	<i>Brooklyn,</i>	4 Med. (N.Y.C.)
White, Carl Foster,	<i>Cleveland, O.,</i>	4 Arch.
White, Charles Francis,	<i>Brooklyn,</i>	1 Law
White, George Starr,	<i>Yonkers,</i>	1 Med. (N. Y. C.)
White, Gersham Franklin,	<i>Malta, O.,</i>	1 Medicine
White, Gorrell Robert,	<i>Auburn,</i>	4 Arts
White, Hamilton Howard,	<i>Syracuse,</i>	1 Arts
White, John Jay, Jr.,	<i>Albany.</i>	4 Mech. Eng.
White, Robert Joseph,	<i>Lockport,</i>	1 Medicine
White, Ward Benjamin,	<i>Preston Hollow,</i>	1 Arts
White, Ward Emerson,	<i>Charleston, W. Va.,</i>	1 Civil Eng.
White, William Bew,	<i>Albany,</i>	1 Arts
White, William Henry,	<i>Walton,</i>	2 Civil Eng.
White, William Morse,	<i>Bergen,</i>	2 Mech. Eng.
Whitehead, James Harold,	<i>Buffalo,</i>	3 Mech. Eng.
Whitehead, Van Loan, Jr.,	<i>Buffalo,</i>	1 Arts
Whiting, George Scott,	<i>Brooklyn,</i>	1 Arts
Whiting, Rex,	<i>Patchin,</i>	3 Veterinary
Whiting, Wythe Lawler,	<i>Mobile, Ala.,</i>	2 Mech. Eng.
Whitney, Francis Luther,	<i>Elmira,</i>	3 Arts
Whitney, Jessamine Sophia,	<i>Union,</i>	4 Arts
Whitney, Leonard Harrison Martin,	<i>Hornellsville,</i>	1 Civil Eng.
Whitson, Mary,	<i>Ithaca,</i>	4 Arts
Whittaker, Elizabeth Leigh,	<i>Brookton,</i>	4 Arts
Wick, Frances Gertrude, A.B.,	<i>Butler, Pa.,</i>	4 Arts
Wicks, Charles Hall,	<i>Cohoes,</i>	2 Arts
Wicks, James Monroe,	<i>Brooklyn,</i>	4 Med. (N.Y.C.)
Wicksman, Samuel,	<i>Brooklyn,</i>	3 Med. (N.Y.C.)
Wickser, Philip John,	<i>Buffalo,</i>	1 Arts

Wien, Paul A,	Mansfield, O.,	3 Mech. Eng.
Wienhoeber, William Herman,	Chicago, Ill.,	1 Civil Eng.
Wight, Herbert, A.B.,	Andes,	Sr. Law
Wigley, Chester Greenhalgh,	Yonkers,	1 Civil Eng.
Wigley, William Roy,	Yonkers,	1 Mech. Eng.
Wigton, Charles Benson,	Philadelphia, Pa.,	1 Civil Eng.
Wilcox, Archie Dorr,	Cohocton,	Sp. Agriculture
Wilcox, Guy Martin,	Cohocton,	Sp. Agriculture
Wilcox, Henry Hopson,	Potsdam,	3 Med. (N. Y. C.)
Wilcox, Roscoe Squires,	Bergen,	4 Med. (N.Y.C.)
Wilcox, Roy Franklin,	Council Bluffs, Iowa,	Sp. Agr.
Wilder, Edward Tucker,	Elmhurst, Ill.,	3 Mech. Eng.
Wilder, Erskine Phelps,	Elmhurst, Ill.,	4 Mech. Eng.
Wilder, Harold,	Elmhurst, Ill.,	1 Arts
Wilder, La Verne Arthur,	Ithaca,	Jr. Law
Wiley, Clarence Fairfax,	Chicago, Ill.,	2 Mech. Eng.
Wiley, Maxwell Harvey,	Indianapolis, Ind.,	Jr. Law
Wilkes, Stuart Ball,	Buffalo,	1 Arts
Willcox, Abel Comstock,	Smyrna,	3 Arts
Willcox, James DeWitt,	Montgomery, Ala.,	2 Civil Eng.
Willetts, Ray Douglas,	Chicago, Ill.,	3 Mech. Eng.
Willey, Wilford Bennett,	Ithaca,	2 Arts
Willgoose, Arthur Linforth,	Brooklyn,	1 Civil Eng.
Williams, Albert Blake,	Brooklyn,	2 Mech. Eng.
Williams, Benjamin Oliver,	Denver, Colo.,	4 Arts
Williams, Burr Fiske,	Brockport,	4 Arts
Williams, Charles Laurance,	Washington, D. C.,	4 Mech. Eng.
Williams, Donald Davol,	Brooklyn,	2 Mech. Eng.
Williams, David Miles,	Utica,	Sp. Agriculture
Williams, Eleazer Deming,	Pittsfield, Mass.,	1 Mech. Eng.
Williams, Ira,	Philadelphia, Pa.,	1 Mech. Eng.
Williams, J Stewart,	Kingston, Pa.,	1 Civil Eng.
Williams, Owen Emmett,	Warsaw,	1 Veterinary
Williams, Rodney Ralph,	Fredonia,	2 Medicine
Williamson, Harry Clay,	Willow Grove, W. Va.,	Sr. Law
Williamson, John Kennedy,	Bethel, Conn.,	1 Mech. Eng.
Willis, Ralph Sanderson,	Brooklyn,	1 Mech. Eng.
Wills, John Gordon, B.S.A.,	Chateaugay,	1 Veterinary
Willson, Frederic Cornelius,	Ithaca,	1 Veterinary
Wilson, David,	Amsterdam,	4 Arts
Wilson, Elbert Andrew, B.S.,	Ithaca,	2 Mech. Eng.
Wilson, Griswold,	Philadelphia, Pa.,	1 Mech. Eng.

Wilson, Harry Keith,	Bloomington, Ill.,	2 Civil Eng.
Wilson, John Bailey, B.S.,	Philadelphia, Pa.,	3 Civil Eng.
Wilson, John Crosier,	Hall's Corners,	3 Mech. Eng.
Wilson, Martin Luther,	Ithaca,	1 Arts
Wilson, Robert,	Brooklyn,	2 Mech. Eng.
Wiltse, Chauncey Livingston,	Fullerton, Neb.,	1 Arts
Winans, James Albert, A.B., A.M.,	Ithaca,	Jr. Law
Wincor, Henry,	New York City,	1 Med. (N.Y.C.)
Winder, Adam Heber,	Dayton, O.,	1 Law
Wing, Walter Sterling,	Detroit, Mich.,	2 Mech. Eng.
Winne, Worden Elliott,	Ames,	1 Law
Winslow, Elizabeth Bishop, A.B.,	Ithaca,	1 Medicine
Winslow, Floyd Stone,	Henrietta,	3 Med. (N.Y.C.)
Winship, Lef,	Penn Yan,	4 Civil Eng.
Winter, Samuel Guy, A.B., A.M.,	Crooksville, O.,	1 Medicine
Wise, Frank Lounsbury, B.A.,	New York City,	1 Mech. Eng.
Wise, Harold Jacob,	Wheeling, W. Va.,	3 Mech. Eng.
Wismar, William Frederick, A.B.,	Los Angeles, Cal.,	4 Med. (N.Y.C.)
Witbeck, Benjamin Franklin,	Albany,	1 Mech. Eng.
Wolfe, Isidor Erlich,	Brooklyn,	1 Law
Wolfersperger, John Jacob,	Sterling, Ill.,	3 Arts
Wolheim, Louis Robert, B.S.,	New York City,	4 Mech. Eng.
Wood, Charles Montgomery, A.B.,	Chambersburg, Pa.,	2 Mech. Eng.
Wood, Edson LeVerne,	Savannah,	3 Arts
Wood, Frank Travers, B.S.,	Richmond, Va.,	3 Mech. Eng.
Wood, Frederick William,	Berkeley, Calif.,	1 Veterinary
Wood, Galen Arthur,	E. Smithfield, Pa.,	1 Civil Eng.
Wood, James Hewitt,	Mayfield,	Jr. Law
Wood, Mabel Janette,	Ithaca,	4 Arts
Wood, Percy Osmun,	Ithaca,	1 Agriculture
Wood, Rollin,	Muncie, Ind.,	3 Civil Eng.
Wood, William Maxwell,	Portland, Ore.,	1 Mech. Eng.
Woodhull, Stephen Curtis, D.O.,	Ithaca,	1 Medicine
Woodland, LeRoy,	Chicago, Ill.,	3 Mech. Eng.
Woods, Helen Josephine,	Angelica,	Sp. Arts
Woods, John Anderson,	Kansas City, Mo.,	1 Mech. Eng.
Woods, Samuel Hamilton,	Port Jervis,	3 Mech Eng.
Woodside, Samuel Paisley, Jr.,	Ben Avon, Pa.,	1 Civil Eng.
Woodward, Dasie Lucile Field,	Ithaca,	1 Arts
Woodworth, Olin Fitch,	Borodino,	1 Mech. Eng.
Woolf, William Buxton,	Hyattsville, Md.,	3 Mech. Eng.
Worden, John Halleck,	Westmoreland,	1 Arts

Worden, Harold Everett,	Ithaca,	2 Mech. Eng.
Workman, Isaac,	New York City,	1 Med. (N.Y.C.)
Worrall, Clayton Smith,	Media, Pa.,	4 Mech. Eng.
Wortman, George Augustus,	Kingston,	1 Mech. Eng.
Wortmann, Otto, B.S.,	New York City,	3 Mech. Eng.
Worts, Elizabeth Mannister,	New York City,	4 Med. (N.Y.C.)
Wosika, Leon Roudolph,	Beatrice, Neb.,	3 Mech. Eng.
Wray, Alfred Bussell,	Elmira,	4 Mech. Eng.
Wright, Arthur Mullen, A.B.,	Lyndonville,	4 Med. (N.Y.C.)
Wright, Edward Albin,	Lewiston,	1 Mech. Eng.
Wright, Frank Atwater,	Bartow, Fla.,	1 Law
Wright, Frank Henry,	Rhinebeck,	2 Veterinary
Wright, Richard Avery,	Brooklyn,	4 Mech. Eng.
Wright, Roy Rex,	Saranac Lake,	2 Architecture
Wright, Thomas Temple, B.A.,	Rutherford, Va.,	1 Civil Eng.
Wright, William Titus,	Brooklyn,	1 Mech. Eng.
Wu, Kuei Ling,	Canton, China,	4 Mech. Eng.
Wyckoff, Ralph Fenton,	So. Pasadena, Cal.,	1 Civil Eng.
Wylie, Arthur Gove,	Blackinton, Mass.,	4 Mech. Eng.
Wylie, Clarence Raymond,	Saginaw, Mich.,	4 Mech. Eng.
Wynkoop, George Edmund,	Bath,	Jr. Law
Wynkoop, Roy Baldwin,	Chemung,	1 Medicine
Yard, Willis Stuart,	Denver, Colo.,	1 Civil Eng.
Yates, William Henry,	Negaunee, Mich.,	3 Mech. Eng.
Ycasiano-Roxas, Francisco, B.A.,	Bulacan, P. I.,	1 Mech. Eng.
Yeomans, Mabel Ford,	Oxford,	2 Arts
York, Fritz Elerd,	Varna,	3 Veterinary
Yorkey, Charles John,	Parish,	Sr. Law
Young, Andrew Dewing,	Owego,	4 Mech. Eng.
Zehnder, Anthony Charles,	Newark, N.J.,	2 Med. (N.Y.C.)
Zener, Robert Dodge,	Indianapolis, Ind.,	2 Mech. Eng.
Zerns, Arthur Burtis,	Watertown,	4 Arts
Ziegler, Carl Albert,	Syracuse,	1 Medicine
Zimmer, William Wallace,	Weedsport,	Sp. Agriculture
Zimmer, Wilson Briggs,	Gallupville,	4 Med. (N.Y.C.)
Zimmerman, Earl William,	Fort Plain,	2 Mech. Eng.
Zingher, Abraham,	New York City,	1 Med. (N.Y.C.)
Ziporkes, Joseph,	Brooklyn,	4 Med. (N. Y. C.)
Zipp, Philip Henry,	Baltimore, Md.,	4 Mech. Eng.
Zoch, Frank Paul,	Pittsburgh, Pa.,	1 Mech. Eng.
Zorn, Freda,	Brooklyn,	1 Arts
Zuckerman, Jerome,	New York City,	1 Med. (N.Y.C.)

STUDENTS IN THE SUMMER SESSION.

Adler, Frieda,	<i>New York City</i>
Aguiar, Maria,	<i>Juana Diaz, P. R.</i>
Aitken, John Winfield, Jr., C.E. (Pa. Mil. Coll.), 1904,	
	<i>Carbondale, Pa.</i>
Allard, Alberta Sammis,	<i>Brooklyn</i>
Allen, Mercie Anna,	<i>Fitchburg, Mass.</i>
Allen, Nellie Burnham,	<i>Fitchburg, Mass.</i>
Allison William Franklin, B.S. (So. Dak. Agr. Coll.), 1895, B.S. in C.E. (Purdue), 1897, C.E. (Cornell Univ.), 1904,	
	<i>Brookings, S. D.</i>
Alsieux, John J.,	<i>Arroyo, P. R.</i>
Althaus, Edward, Jr.,	<i>New York City</i>
Andino, Luis,	<i>Coamo, P. R.</i>
Andino, Rafael,	<i>Coamo, P. R.</i>
Andresen, Caroline,	<i>New York City</i>
Andresen, Ellen Minna,	<i>New York City</i>
Anger, Mattie Marie, Ph.B. (Buchtel Coll.), 1899,	<i>Akron, O.</i>
Apgar, Clara Selkreg,	<i>Ithaca</i>
Aponte, Domingo,	<i>Lares, P. R.</i>
Arana, Salvador,	<i>San Sebastian, P. R.</i>
Arnold, Elizabeth May, B.Ph. in Ped. (Univ. of Wis.), 1900,	
	<i>Oshkosh, Wis.</i>
Arnold, Turner Schnette,	<i>Clarion, Pa.</i>
Arroyo, Manuel Nicolas,	<i>Guayama, P. R.</i>
Ashmun, Jennie Cordelia,	<i>Brooklyn</i>
Astol, Adela,	<i>Ponce, P. R.</i>
Atwater, Henry,	<i>East Orange, N. J.</i>
Atwood, William Bartlett,	<i>Beaver, Pa.</i>
Baker, Benjamin Charles,	<i>Providence, R. I.</i>
Barber, George Lynn,	<i>West Chazy</i>
Barclay, Maragaret Ethel,	<i>Brooklyn</i>
Bardenheuer, Clara Emily,	<i>College Point</i>
Bardwell, Etta May, B.S. (Ill. Normal), 1887,	<i>Marseilles, Ill.</i>
Barnes, Oren Jones, B.S. (Ohio Wes. Univ.), 1902,	<i>Mansfield, Pa.</i>
Barnum, Charlotte Elizabeth,	<i>Brooklyn</i>
Barroll, Henry Edward,	<i>Ithaca</i>
Barroll, Lucy,	<i>Chicago, Ill.</i>
Bartlett, Millie Horton,	<i>Brooklyn</i>
Barton, Aida Winifred,	<i>Brooklyn</i>
Bateman, Warner Mifflin,	<i>Glendale, Ohio</i>

Beanchamp, Cecilio Delfin,	Mayaguez, P. R.
Becerra Colon, Sofia,	Arecibo, P. R.
Becker, Caroline Fredericka,	Baltimore, Md.
Beebe, Laurence Laverne,	Alpine
Behnken, Erna Lucies,	Brooklyn
Bell, James Munsie, B.A. (Univ. of Toronto), 1902,	Toronto, Can.
Bell, Winthrop Pickard, B.A. (Mount Allison Univ.), 1904,	
	Halifax, N. S.
Bendann, Effie,	Baltimore, Md.
Bengoa, Jose Tomas,	Coamo, P. R.
Bengston, Nels August,	Peru, Neb.
Benjamin, Edith Sibley, A.B., 1898,	Waits
Bennett, Harold William,	London, England
Bergman, Bertha,	Rochester
Berry, Idelle Rettenma,	Dover, N. H.
Berry, William Wilson, Jr.,	Scranton, Pa.
Besio, Josephine Mae,	Flushing
Bettys, Lavina,	Detroit, Mich.
Bigelow, Helen Maria,	Blackstone, Mass.
Bigles, Mercedes,	Aibonito, P. R.
Billings, John Dixon,	Syracuse
Billwiller, Ernest Oswald,	Brooklyn
Bird, Edward James,	Ironton, Ohio
Blackmer, Anna Wood, A.B. (Wellesley), 1901,	Cortland
Blanco, Blanca,	Dorado, P. R.
Blanco, Pablo Benigno,	Bayamon, P. R.
Blanco, Victorina,	Utuado, P. R.
Bliss, George Ripley, B.A. (Bucknell), 1903,	Washington, D. C.
Bliss, Helen Louise, A.B. (Brown Univ.), 1900, A.M. (same), 1901,	Providence, R. I.
Bliss, Rose Danielson,	Providence, R. I.
Blumenstock, Jacob,	Brooklyn
Bohrer, Walter,	Cincinnati, Ohio
Boldt, George Charles, Jr.,	New York City
Bosche, Frederick Darlington,	Buffalo
Bower, John Gosh, Jr.,	Hagerstown, Md.
Bowman, Charles Henry, M.Sc. (Iowa State Univ.), 1897,	Butte, Mont.
Bowman, Minnie Pauline,	Butte, Mont.
Boyce, Ivan Albert,	Greene
Boyle, Albert Clarence,	Salt Lake City, Utah
Bradley, Alva,	Cleveland, Ohio

Bradley, Elizabeth Lucinda,	Cato
Bremer, Karl, B.A. (Coll. of Cape of Good Hope), 1903,	<i>Stellenbosch, Cape Colony</i>
Brinsmade, Robert Bruce, Eng. Mines (Lehigh), 1895,	Syracuse
Broadhurst, Amy Antoinette,	Brooklyn
Broadhurst, Philip Harvey,	Brooklyn
Brown, Edmond Swain,	Winsted, Conn.
Brown, Ethel Anna,	Newark, N. J.
Brown, George Teall,	New York City
Brown, Martha Avery, B.S., 1893,	Aurora, Ill.
Brown, Mary Louise, M.A. (Wellesley), 1903,	Round Lake
Browne, William Henry, Jr.,	Great Barrington, Mass.
Bruce, Harry Alexander,	Chicago, Ill.
Brunet, Carlos,	Aguadilla, P. R.
Bryant, Henry Weare,	Riverside, Ill.
Budington, Anna, B.Ped. (Albany Nor. Coll.), 1901,	Kingston
Burnham, Trumbull Griswold,	Willimantic, Conn.
Burns, Charles,	Brooklyn
Burr, H Frank,	Oakdale
Burrows, Earle Nelson,	Deposit
Byrne, Alice Hill, B.E. (Millersville Normal), 1894,	Lancaster, Pa.
Byrne, Henry Herbert,	Washington, D. C.
Cabrera, Josefa Bozzo,	San Juan, P. R.
Cabrera y Sierta, Maria,	Juana Diaz, P. R.
Cabrera, Mercedes,	San Guan, P. R.
Callaghan, Mary Veronica,	New York City
Campbell, Donald Argyll,	Brooklyn
Canfield, Fred William,	Carlisle, Pa.
Cannon, George Lyman, A.M. (Univ. of Denver), 1900,	Denver, Colo.
Capo, Eduardo,	Guayama, P. R.
Carde, Jose G.,	San Sebastian, P. R.
Cardozo, Louis Lopes,	Brooklyn
Carpenter, Doris,	Brooklyn
Carpenter, George,	Ithaca
Carpenter, Naomi Jennette,	Ithaca
Carretero, Francisco,	Hatillo, P. R.
Carril, Higinia,	San Sebastian, P. R.
Case, Clara Montague, B.S. (National Nor. Univ.), 1888,	Brooklyn
Castillo, Juan Emerito,	Quebravillas, P. R.
Castle, Samuel Northup, A.B. (Harvard), 1901,	Ithaca
Cavanaugh, Sabina,	Dayton, O.
Chase, Thomas Noyes, A.M. (Harvard), 1870,	Atlanta, Ga.

Clark, John Anson, B.S., 1896,	Brooklyn
Clark, Martha Miller, A.B. (Vassar), 1897, A.M. (same), 1898,	Brooklyn
Clarke, Douald Henderson,	Holyoke, Mass.
Clarke, Philip Lancaster,	Pittsburg, Pa.
Clay, Amelia,	Philadelphia, Pa.
Cleveland, Harry Whitehill, C.E. (Penna. Mil. Coll.), 1904,	Newburg
Cleveland, Milo L,	Brockport
Clifton, Frederick Charles,	Montclair, N. J.
Clinger, Daniel, Jr.,	Milton, Pa.
Clinger, Ralph Sylvester,	Williamsport, Pa.
Cloyd, Genevieve, A.B. (Smith), 1897,	New York City
Clurman, Morris Joseph,	New York City
Cobb, Ralph Wilkinson,	Cleveland, O.
Cochran, Berry Wynn, B.S. in E.E. (Ga. School of Tech.), 1903,	Palmetto, Ga.
Cochrane, Ethel Putney,	Brooklyn
Coe, Benjamin Steele,	Waterbury, Conn.
Coe, Ralph Brewster,	Oxford
Collier, George Dudley,	Rochester
Collin, John Bernhard,	Altoona, Pa.
Collins, Lucy Jane,	Amsterdam
Colon, Juan Aguilar,	Camuy, P. R.
Colon, Antonio Vincente,	Coamo, P. R.
Colon, Eduardo,	Yauco, P. R.
Comulado, Dolores,	Lares, P. R.
Conant, Emily Ida, Pd.D. (N. Y. Univ.), 1891,	New York City
Cook, Elizabeth Studdiford,	Madison, N. J.
Cooper, Le Brun,	East Orange, N. J.
Cope, Thomas Darlington, A.B. (Univ. of Penn.), 1903,	West Chester, Pa.
Corbiere, Levan Smull,	Caldwell, N. J.
Corbin, William Lee, A.B. (Amherst), 1896, A.M. (Yale), 1900,	Syracuse
Corcilius, Josephine,	Jamaica
Cornell, William Bouck,	Ithaca
Corr, Catherine Veronica,	Brooklyn
Correll, Hugh,	Canton, O.
Corse, Florence Brewster, A.B., 1902,	Saugerties
Costas Purcell, Rafael,	Puertolas, P. R.
Courrier, George Fred,	Wells, Minn.

Cotton, Donald Reed,	Fairmount
Courtright, Milton,	Inwood, Ont., Can.
Cramer, Emma Mary,	Portsmouth, O.
Cramer, Hedwig Dorathee,	Hoboken, N. J.
Crittenden, Eugene Casson,	Oswayo, Pa.
Crook, Martha Augusta Loescher, B.A. (Denver Univ.), 1903,	Fairplay, Colo.
Cuervo, Manuel Victorino,	Havana, Cuba
Cunday, Zeta Berenice,	Philadelphia, Pa.
Cunningham, Gus Watts, A.M. (Furman Univ.), 1902,	Birmingham, Ala.
Curtis, Bertha Jane,	Addison
Curtis, Harry Leroy,	New York City
Cushing, Prentice,	East Orange, N. J.
Daggett, Mabel Cornelius, A.B. (Elmira Coll.), 1896,	Elmira
Dakin, Raymond Eggleston,	Mt. Kisco
Dana, Harold Edward,	Brooklyn
Darby, Clifford Torrey	St. Louis, Mo.
Dargan, Frank Townes, M.S. (Furman Univ.), 1899,	Clemson College, S. C.
Davies, Edward Livingston,	New York City,
Davila Semidey, Mary,	Patillas, P. R.
Davis, Henry Emerson,	Peabody, Mass.
Davison, Charlotte Isabelle, A.B. (Wilson Coll.), 1897,	Chambersburg, Pa.
Dawson, John Charles, B.A. (Georgetown Coll.), 1901,	Birmingham, Ala.
Dayton, Paul Kuykendall,	Towanda, Pa.
Day, Irvin Williams,	Utica
De Bard, Davis Meade,	McMinnville, Tenn.
Decatur, Jay Halsey,	Peekskill
De Garmo, Robert Max,	Ithaca
Delcassee, Georges,	Buenos Aires, Arg. Rep.
Dennis, Nina A, A.B., 1904,	Binghamton
Dewey, George Steele, B.S. (Va. Mil. Inst.), 1903,	Goldsboro, N. C.
Dibrell, Louis Nelson,	Danville, Va.
Dickinson, Florence,	Trenton, N. J.
Dickinson, Harriet Stryker,	Trenton, N. J.
Divine, John Howard,	Ellenville
Doherty, Mary, A.B., 1899,	Cincinnati, Ohio
Donovan, Margaret Julia Mary,	Newport, R. I.
Downing, Aida Master,	Flushing

Drake, Raymond Rogers,	Buffalo
Drury, Alexander Getchell,	Cincinnati, Ohio
Dunbar, Jennie Louise,	Brooklyn
Dunbar, William Foreman,	Brooklyn
Duran, Angelica Josefa,	San Sebastian, P. R.
Edmond, Sarah,	Cohocton
Edson, Ray Arthur,	Crittenden
Edwards, Olive Ruth,	Forest Home
Efinger, Philip Charles,	Lancaster, Pa.
Egbert, Marion Thornton,	Shevaroy Hills, India
Eiseman, Stanley,	Baltimore, Md.
Elliott, John Earle, A.B. (William & Mary Coll.), 1899,	Hampton, Va.
Ellyson, Douglas Walker,	Richmond, Va.
Emerson, Filip Law,	Detroit, Mich.
Emery, Mary Louise, A.B. (Mt. Holyoke), 1898,	Warsaw
Emmons, Fred Earl, A.B., 1902,	Elmira
Engle, Elsie Ross, A.B., 1899, A.M., 1904,	Ithaca
Erlanger, Milton Strauss,	Baltimore, Md.
Espenschied, Fred Fairfax, Jr.,	Brooklyn
Estrada, Eloy,	Aguada, P. R.
Evans, Chester Willard,	Ithaca
Evans, Emily Abigail, A.B. (Woman's Coll. Baltimore), 1904,	Reisterstown, Md.
Fawell, Joseph Edward,	Pittsburg, Pa.
Fernandez, Nicolas,	San German, P. R.
Ferris, Ralph,	Ithaca
Figueroa, Manuel,	Barranguitas, P. R.
Figueroa, Maria S.,	Juana Diaz, P. R.
Finch, Harriet Louisa,	Ithaca
Fleck, Anthony George, A.B. (St. Francis Xavier), 1902,	Brooklyn
Flores, Valeriano,	Barros, P. R.
Follett, Phebe Celinda,	Adams, Mass.
Foote, George Wilson,	Vineland, N. J.
Forgy, John Edmonds,	Dayton, Ohio
Forshee, Isaac Christopher,	Willet
Foth, George,	Calstadt, N. J.
Francis, Samuel Edgar,	Wilmington, Del.
Frank, Julian,	Paris, Ky.
Fraser, Nora Blanding,	Staunton, Va.
Frazee, Youle Townsend,	Montclair, N. J.
Fringer, Samuel Hall Tagart,	Taneytown, Md.

Fritch, Robert Peter,	Reading, Pa.
Fuertes, Mary Katharine,	Ithaca
Fuller, Ernest Johnson,	Brooklyn
Fussell, Lewis, B.S. (Swarthmore), 1902, M.S. (same), 1903,	
	Media, Pa.
Gallagher, DeWitt Clinton, Jr.,	Charleston, W. Va.
Galvez, Julio,	Utuado, P. R.
Garbi, Louis, Jr.,	New York City
Gardner, Robert A.,	Scranton, Pa.
Gates, Leroy Grant,	Ithaca
Gause, Ella Townsend,	Chester, Pa.
George, Gilbert Gibson,	Rockaway Beach
Germann, Fred William,	Ithaca
Goetter, Edward Baldwin,	New York City
Gonzalez, Antonio,	Oucbradillas, P. R.
Gonzalez, Jose,	Arecibo, P. R.
Gottschalk, Victor Hugo, B.S. (Mo. Sch. of Mines), 1898, M.S. (same), 1900,	St. Louis, Mo.
Gould, Clarence Allen,	Seneca Falls
Gracia Zayas, Zoilo,	Coamo, P. R.
Granuan, Mary Henrietta,	West Phila., Pa.
Gray, Harriet,	Brooklyn
Gray, Temperance, A.B. (Adelphi Coll.), 1903,	Brooklyn
Green, Vennis A, A.B. (Grove City Coll.), 1895, A.M. (same), 1897,	West Sunbury, Pa.
Greenwood, Ernest Hervey,	Williamsport, Pa.
Griffin, Frankie Lawrence, A.B. (Keuka Coll.), 1904,	Keuka Park
Grim, James Stewart, A.M. (Lafayette Coll.), 1901,	Kutztown, Pa.
Griswold, Horace,	Binghamton
Gutierrez Ygaravidez, Jose,	Coamo, P. R.
Guy, Mary Wills,	Staunton, Va.
Hallborg, Signe Adina,	Newport, R. I.
Halle, Jerome Norman,	Cleveland, Ohio
Hand, Calla Marie, Ph.B. (Iowa Coll.), 1899,	Ottumwa, Iowa
Hannon, William Weatherly,	Montgomery, Ala.
Harding, Claude Corydon,	Wellsboro, Pa.
Harkness, Andrew Marr,	Pittston, Pa.
Harris, Isabel,	Richmond, Va.
Harris, Janet Newland, Ph.B. (Syracuse Univ.), 1901,	New York City
Hartzell, Cyrus King,	Pittsburg, Pa.
Haskell, Clifton Roy,	Jersey City, N. J.
Haskell, Fred Kibbie,	Bradford, Pa.

Hayes, Agnes Stone, A.B. (Vassar), 1898,	Rochester
Hayes, Ellen, B.A. (Oberlin), 1878,	Wellesley, Mass.
Hayes, Samuel Perkins, B.A. (Amherst), 1896, B.D. (Union Sem.), 1902, M.A. (Columbia), 1902,	Rochester
Hechheimer, Herbert,	Baltimore, Md.
Herder, Cherie Marie,	Brooklyn
Herr, Benjamin Musser,	Lancaster, Pa.
Herrick, Charles Henry, Ph.B. (Colgate Univ.), 1900,	Manchester
Hewitt, John Marshall,	Marianna, Ark.
Higgins, Ethel May,	Charleston, Me.
Hill, Alexander Edward,	Brooklyn
Hill, Alice J.,	Brooklyn
Hills, Harry Clark,	Youngstown, O.
Hiltebrant, Oscar Raymond,	Kingston
Hinckley, George Stevens, B.S. (Pomona Coll.), 1903,	Redlands, Calif.
Hunnant, Fletcher Elkin,	Columbia, S. C.
Hitchcock, George Gale, A.B. (Univ. of Nebr.), 1883,	Claremont, Calif.
Hoage, Norma,	Brooklyn
Hollrock, Adeline Louise,	Brooklyn
Holmes, Edwin Merritt,	Daiquiri, Cuba
Hooper, Frank Finley, A.B. (Grant Univ.), 1897, A.M. (same), 1900,	Chattanooga, Tenn.
Hotchkiss, Olin Culver, A.B. (Union Coll.), 1899, A.M. (same), 1902,	Fultonville
Howland, Sarah Maud De Valle,	Binghamton
Hueston, Jessie Elliott, B.S. (Nat. Normal Univ.), 1883,	Brooklyn
Hughes, Elizabeth Roberts, M.E. (Bloomsburg Normal), 1894,	Scranton, Pa.
Hughes, Sara Monita,	Ridgewood, N.J.
Humburch, Raymond Sage,	Rochester
Huribut, Ina Helen,	New York City
Husted, Clifford Mackay,	Buffalo
Huestis, Roland Ludington,	Milwaukee, Wis.
Huyke, Bernardo,	Arroyo, P. R.
Huyke, Henry,	Arroyo, P. R.
Huyke, Juan Bernardo,	Arroyo, P. R.
Illman, Hubert Percy,	Washington, D. C.
Infante Saavedra, Mercedes,	San Juan, P. R.
Ingalls, John Conrad,	Phelps
Ingham, Percy Bowman,	Wilkes-Barre, Pa.
Irish, Elizabeth Standin,	Utica

Irish, Frederic Joseph,	Patterson
Irizarry, Francisca,	Ponce, P. R.
Jackson, Nelson Abraham, A.B. (Bates), 1900,	Keuka Park
Jacobe, Elizabeth Anne,	New York City
Jansen, Edward Walter,	New York City
Jeffers, Mary Josephine,	Brooklyn
Jimenez, Ricardo,	Aguada, P. R.
Johannsen, Oskar Augustus, B.S. (Univ. of Ill.), 1894, A.M. (Cornell Univ.), 1902, Ph.D. (Cornell Univ.), 1904,	Ithaca
Johnson, Anna Christine,	Bessemer, Mich.
Johnson, Nathan Clarke,	Pittston, Pa.
Johnson, Nelle,	El Reno, Okla.
Johnson, S Albert,	Mansfield, Pa.
Johnston, William Robert,	Oak Park, Ill.
Jones, Mary Maud,	Tonawanda
Jones, Stanley Robert,	Ithaca
Joslyn, Raymund Elbert,	Jersey City Heights, N. J.
Kane, Thomas Francis, A.B., 1892,	New Brighton
Katsuzo, Tsuruta,	Tokio, Japan
Keane, Michael Bernard,	New York City
Keeney, Robert Matison,	Belvidere
Keller, Harriet Brown,	Philadelphia, Pa.
Kelley, Edward,	Philadelphia, Pa.
Kellogg, James Gifford,	Chicago, Ill.
Kerby, Harriet Adelia,	Brooklyn
Kirk, William Andrew Anderson,	Gouverneur
Kleppisch, George Hugo Otto,	New York City
Kling, Herbert Allen,	Woodbine, Iowa
Knapp, Anna Parish,	Sewickley, Pa.
Koppisch, Bella,	Aguadilla, P. R.
Koppisch, Louise,	Aguadilla, P. R.
Krauskopf, Francis Craig, A.B. (Indiana Univ.), 1904,	Maywood, Ill.
Krebs, Matilda,	Johnstown, Pa.
Krenning, Edna,	Ft. Recovery, Ohio
Kyser, Henry Hearst, E. & M.E. (Ala. Poly. Inst.), 1896,	Talladega, Ala.
L'Allemand, Nannie,	Baltimore, Md.
Lafaye Torres, Severo,	Ciales, P. R.
Lamb, Roy Dane,	Chicago, Ill.
Landers, Eugene,	Upper Lisle
Lane, Richard Jenkins,	Philadelphia, Pa.
Lange, Carl William,	Galveston, Texas

Larkin, Katherine Veronica,	Ithaca
Leask, Clara,	New York City
Lathrop, Henry Julian,	Tottenville
Latta, James Edward, A.M. (Harvard), 1904,	Chapel Hill, N. C.
Langier, R Agustin,	San Juan, P. R.
Lawrence, Norman Spear,	Riverside, Ill.
Leavitt, Mary Frances, Ph.B. (Boston Univ.), 1900,	Melrose, Mass.
Lebron, Pedro Jilio,	Yauco, P. R.
Lee, Cazenove Gardner, Jr.,	Washington, D. C.
Legrand, Juan Federico,	Utuado, P. R.
Lehman, Allan S,	New York City
Leighton, Arthur,	Brooklyn
de Lemoine, Luis Fanor, Jr.,	Buenos Aires, Arg. Rep.
Leon, Ricardo,	Oaxaca, Mexico
Lewis, Amy Olive, A.B. (Moravian Sem.), 1891,	Philadelphia, Pa.
Lillie, Edward Prentiss,	Gilbertsville
Lillie, Florence Ella,	St. Anthony Park, Minn.
Lindman, Raymond Heald,	Chicago, Ill.
Lippincott, James Janney,	Philadelphia, Pa.
Lippincott, Martha Colson,	Moorestown, N. J.
Little, Clarence Duane,	Montclair, N. J.
Locke, Leslie Leland, A.B. (Grove City Coll.), 1896, A.M. (same), 1900,	Brooklyn
Lopez, Francisco,	Quebradillas, P. R.
Lopez, Rodolfo,	Moca, P. R.
Lopez, Salvador,	Lares, P. R.
Lopez Garcia, Diego,	Corozal, P. R.
Lopez Bou, Jaime N,	Corozal, P. R.
Lovejoy, William Henry,	Buffalo
Lucker, Grover,	Brooklyn
Lugo, Justo,	San German, P. R.
Lyles, Thomas Minter,	Winnboro, S. C.
Lynah, James,	Savannah, Ga.
Lynch, Elizabeth,	Greenville, O.
Lyndon, Sophie Harriet,	Fairport
Lyon, Charles Albert, A.B. (Princeton), 1901,	East Orange, N. J.
McCarty, William Timothy,	New York City
McCaughey, Vaughan,	Greenville, Ohio
McClain, Annie Estelle, B.A. (Limestone Coll.), 1897,	Campobello, S. C.
McColloms, Max Reed,	Newton, Iowa

McCormick, Florence Anna, B.A. (Univ. of Tenn.), 1897, M.S. (same), 1900,	Knoxville, Tenn.
McDevitt, Anna Lauretta,	Brooklyn
MacElroy, Chauncey Dumond,	Mount Vernon
McIntyre, Earl Ames,	Middletown
McKelvey, Joseph Vance, B.A. (Westminster Coll.), 1902,	New Wilmington, Pa.
McKenna, James Augustine, Jr.,	New York City
McKenna, Joseph Augustine,	New York City
McLaughlin, John Miller, B.S. (Mt. Union Coll.), 1900,	Canal Fulton, O.
McLeod, Donald Fraser,	Westville, N. S., Canada
McMellan, Marion,	St. Joseph, Mo.
MacMinn, Caroline, B.E. (West Chester Nor.), 1899,	Williamsport, Pa.
McNamara, Helen Catherine,	Binghamton
MacRae, Donald Alexander, A.B. (Dalhousie), 1898, A.M. (Cornell Univ.), 1899,	Ithaca
McTammany, Etta,	Troy
McWhorter, Hugh Brooks,	Ithaca
Mainwaring, William Hamer,	Cresson, Pa.
Manville, William Willett,	Newport News, Va.
Mariau Colmenero, Santiago,	Manati, P. R.
Marin, Fausto,	San Juan, P. R.
Marshall, Henry Cowles, A.B., (Oberlin), 1897,	Lorain, O.
Martinez, Julio Tomas,	Arecibo, P. R.
Martin, Elizabeth Hare,	Adams, Mass.
Martinez, Manuela A de,	San Juan, P. R.
Martinez, Pedro R,	Guayame, P. R.
Marvin, Ross Gilmore,	Elmira
Mast, Helen Murray,	Brooklyn
Matthews, Mabel Ella,	North East, Md.
Mattoon, Roma Roma,	Windham
Mauley, Frederick,	Long Island City
Mears, John Farnham,	Scranton, Pa.
Medina, Joaquin A,	Aguada, P. R.
Meister, James Franklin,	Kansas City, Mo.
Melvin, Carroll Loomis,	Bradford, Pa.
Mendez, Americo,	Lares, P. R.
Mendez, Andres,	San Sebastian, P. R.
Mendez, Gerardo,	Lares, P. R.
Mendez, Manuel,	San Sebastian, P. R.

Merrill, John Bradbury, A.B. (Colby), 1896, A.M. (same), 1900,	Woonsocket, R. I.
Merriman, Eugene Duette,	Ithaca
Mertz, Edna Lenora,	Sedalia, Mo.
Messer, Anna Teresa,	Ithaca
Michener, Jeannie Roberts,	Philadelphia, Pa.
Milan, Fernando,	Aguadilla, P. R.
Milan, Nicolas,	Aguadilla, P. R.
Miller, Frederick,	Mt. Vernon
Miller, Grace Metcalf, B.A. (Wellesley), 1900,	Le Roy
Mirabal, Petra,	Ponce, P. R.
Mitchell, James Reid, Jr.,	New York City
Mix, David Cameron,	Ithaca
Mitchell, Marie Antoinette,	Brooklyn
Molatch, Otto Allan, A.B., 1904,	Brooklyn
Moler, Albert Daniel,	Ithaca
Monagle, Catharine Louise, A.B., 1904,	Norwich
Monclova Knidel, Manuel,	Rio Piedras, P. R.
Montgomery, Dudley,	New York City
Mora, San'ago,	Arecibo, P. R.
Morales, M L Benilde,	Arecibo, P. R.
Moreno, Monserrate,	Lares, P. R.
Moret, Francisca,	Ponce, P. R.
Morse, Marian Thompson,	Baltimore, Md.
Mueller, Curt Berthold,	Cleveland, O.
Mueller, Fred Jacob,	Los Angeles, Cal.
Munden, Ralph,	Allegheny, Pa.
Munoz, Felix Oscar,	Juana Diaz, P. R.
Narvaez, Ricardo,	Arecibo, P. R.
Navarro, Jose Eustacio,	Arroyo, P. R.
Negroni, Santiago,	Yauco, P. R.
Newberry, Carlos Alfredo,	Buenos Aires, Arg. Rep.
Newman, Edmund Taylor,	Buffalo
Newton, Jason Howard,	Springfield, Mass.
Newton, Wilbur W,	Pueblo, Colo.
Nicolassen, George Frederick, Ph.D. (Johns Hopkins), 1882,	Clarksville, Tenn.
Nichols, De Witt Lethbridge,	Aurora, Ills.
Nonnamaker, William A,	Mt. Cory, Ohio
Obert, Asa Joseph,	Lehighton, Pa.
Olmstead, Emma Gertrude,	Potsdam
Ortega Nevarez, Jose,	Juana Diaz, P. R.

Ortiz, Ana Maria,	Juana Diaz, P. R.
Ortiz de Zevallos, Fernando,	Lima, Peru
Ortiz, Ramos, Jose,	Juana Diaz, P. R.
Orvis, Warner Dayton,	New York City
O'Sullivan, Margaret Alacoque,	New York City
Otis, Sidney,	Yonkers
Ottley, Alice Maria, A.B., 1904,	Seneca Castle
Outen, Catherine Elizabeth,	Philadelphia, Pa.
Overman, Max Cyrus	Springfield, Mass.
Owen, Grace,	Blackheath, London, England
Owens, Antoinette Katharine,	Walton
Page, Thomas Newton,	Norfolk, Va.
Paget, Frances, B.A. (Elmira Coll.), 1904,	Owego
Palacios, Manuela,	Arecibo, P. R.
Pasarell Vazquez, Juan,	Juana Diaz, P. R.
Parker, Helen Cameron,	Toronto, Canada
Patterson, Gus Harold,	Mansfield, O.
Peck, Edwin Roberts,	Pittsfield, Mass.
Peck, Ross Sanders,	Brookton
Peirce, Clarence Andrew,	Ithaca
Peirce, Paul Skeels, Ph.B. (Cornell), 1897, Ph.D. (Yale), 1900,	Iowa City, Iowa
Perez, Jose,	Ponce, P. R.
Perez, Jose Cristina,	San Sebastian, P. R.
Perez Martinez, Maria,	Aibonito, P. R.
Perez Gomez, Santiago,	Guayama, P. R.
Perez, Urbino,	San Sebastian, P. R.
Philbrick, Frank Herbert,	Waterville, Me.
Pierce, Eunice Martha,	Cohocton
Pierce, William Edward,	Port Chester
Pino Farrera, Francisco, Jr.,	Mexico City, Mexico
Piotrowska, Helen,	Buffalo
Poetzsch, Alexander James,	New York City
Polanco, Valentin,	Florida, P. R.
Pout, Jose,	Aibonito, P. R.
Porrata, Sebastian,	Tanco, P. R.
Potter, Erie Warnette,	Spencer
Potter, Jennie Louise,	Flushing
Potter, Velma Mari, B. of El. (Mansfield Nor.), 1896, M. of El. (same), 1896,	Buffalo
Powers, Ray Rivington,	Atlanta, Ga.
Prados Maymi, Jose,	Corozal, P. R.

Pratt, Harry Melvin,	Hinckley, Me.
Preston, Edwin Murlin,	Cortland
Price, William Kelley,	Kingston
Purdy, Clara Rachel, B.A. (Wellesley Coll.), 1897,	Ovid
Purtell, Thomas Stephen,	Deposit
Putnam, Henry Sibley,	Chicago, Ill.
Quick, Ray Lewis,	Ithaca
Quinn, Charles Emmet,	Cohoes
Radlo, Dora Augusta,	North Adams, Mass.
Rally, Lloyd Anthony,	Albany
Ramirez, Jose,	Aguadilla, P. R.
Reece, William Asher,	Christchurch, New Zealand
Reilly, Agnes Theresa,	Malone
Rice, Samuel Trost,	Cincinnati, Ohio
Richard, Lakin Hannibal,	Ithaca
Ricker, Margaret Tracy,	Portsmouth, Ohio
Riddle, Mary Harriet, M.Ed. (Millersville Nor.), 1899,	Lancaster, Pa.
Riley, Fanny Louise,	Waltham, Mass.
Rivenburg, Romeyn Henry, A.B. (Bucknell), 1897, A.M. (same), 1898,	Hightstown, N. J.
Rivera Almodovar, Francisco,	Guanica, P. R.
Rivera, Carlos,	San German, P. R.
Rivera, Felix,	Juana Diaz, P. R.
Rivera, Jose de Jesus,	Ciales, P. R.
Rivera, Manuel,	Utuado, P. R.
Rivera, Valentin,	San German, P. R.
Roberts, Della May, A.B. (Elmira), 1897,	Elmira
Rodgers, Ralph Chapman,	Binghamton
Rodriguez, Antonio Nater,	Foa-boja, P. R.
Rodriguez, Arsenio,	Naranjito, P. R.
Rodriguez Ortiz, Juan Francisco,	Yanco, P. R.
Rodriguez, Jesus Maria,	Aibonito, P. R.
Rodriguez Todd, Rosa,	San Juan, P. R.
Roe, Ralph Burt,	Ithaca
Rogers, George Edgar, B.S. (Univ. of Mich.), 1899,	Jefferson, Ohio
Rosenfeld, Merrill, A.B. (Johns Hopkins), 1904,	Baltimore, Md.
Rosenheim, Gerald Benjamin, A.B. (Johns Hopkins), 1904,	Baltimore, Md.
Ross, George Hilliard,	Edgewater, N. J.
Rosello, Filomena I de,	San Juan, P. R.
Rosman, Richard,	Hudson
Rosman, Sidney,	Brooklyn

Roth, Rodolfo,	Buenos Aires, Arg. Rep.
Roulston, Robert Samuel, B.S. (St. Lawrence Univ.), 1891, M.S. (same), 1893,	Oneonta
Rowe, Wallis Gibson, A.B. (Yale), 1897,	St. Louis, Mo.
Rowland, Harry Shepard,	Montclair, N. J.
Rowland, William Samuel,	Washington, D. C.
Rubira, Adriano Woodruff,	Mobile, Ala.
Rumoroso, Julia,	Dorado, P. R.
Runyon, Walter Clark, Jr.,	Cleveland, O.
Ryder, Anna,	Brooklyn
Ryder, Harriet Louise,	Brooklyn
Sailor, George Raymond,	Swissvale, Pa.
Salcedo, Rafael,	Coamo, P. R.
Sanchez Elia, Horacio,	Buenos Aires, Arg. Rep.
Sanchez, Jose Providencio,	Salinas, P. R.
Sandoval, Juvenal,	Manati, P. R.
Sandoval, Serafin,	Manati, P. R.
Sanial, Marie Lucien,	Northport
Santiago, Fortiz Alimpio,	Coamo, P. R.
Santiago Santiago, Juan,	Coamo, P. R.
Santini, Rodriguez Luis,	Coamo, P. R.
Sarmiento, Carlos,	Buenos Aires, Arg. Rep.
Savory, Gerald, B.A. (Cambridge), 1900, M.E. (Cornell), 1904,	Banbury, England
Sayce, Archibald Herbert,	New York City
Schaeffer, Jacob Parsons, M.E. (Keystone St. Nor.), 1901,	East Greenville, Pa.
Scheck, Charles Christian,	Niagara Falls
Schlivinski, Charles,	Brooklyn
Schneider, Frederick,	Bedford, Ohio
Schneucker, Elizabeth Salome,	Schenectady
Schoellkopf, Jacob Frederick,	Buffalo
Scranton, William Henry, A.B. 1903,	Scranton, Pa.
Seely, Louise Helen,	Jersey City, N. J.
Seijo, Ramon,	Arecibo, P. R.
Seitz, Isaiah Herr, M.E. (Millersville Nor.), 1895,	Lane, Pa.
Senillosa, Julio,	Buenos Aires, Arg. Rep.
Serbia y Alonso, Celina,	San Juan, P. R.
Sheppard, Joel Fithian, 2nd,	Quincy, Mass.
Sherwood, Joseph James,	Niagara Falls
Sierra Serrano, Maria,	Arecibo, P. R.
Sifonte, Antonio,	Aibonito, P. R.

Sifonte, Juan,	Aibonito, P. R.
Silsbee, James Alfred,	Elmira
Simin, Boriz Nicholajevich, M.E. (Moscow Tech. Sch.), 1902,	Moscow, Russia
Simmons, William Howard,	Oil City, Pa.
Simpson, Dwight Swain,	Powers, Minn.
Sisam, Charles Herschel, A.B. (Univ. of Mich.), 1902, A.M. (same), 1903,	Sloan, Iowa
Skillman, Verne,	Newark, N. J.
Slover, Minnie Elizabeth,	Brooklyn
Smith, Gertrude Heaton,	Haddonfield, N. J.
Smith, Henry Edmond,	Baltimore, Md.
Smith, Howard Charles,	Ithaca
Smith, Morgan Babcock,	Syracuse
Smith, Jean Margaret,	Berkeley, Md.
Smith, Mark Elmer,	Erie, Pa.
Smith, Ralph Brady,	Aurora, Ill.
Snowdon, Ralph Cuthbert,	Scranton, Pa.
Snyder, Floyd Christian,	Massillon, Ohio
Soto, Alfonso,	Sabana Grande, P. R.
Sorondo, Alejandro,	Buenos Aires, Arg. Rep.
Speed, Lorenzo Dowe,	Ithaca
Spencer, Mary,	Brooklyn
Spooner, Frances Matthews,	Allston, Mass.
Starr, Arthur,	Sewickley, Pa.
Stewart, Sarah Dysart,	Flushing
Stieg, Mary Sophia,	York, Pa.
Stillman, Austin Frank,	Brooklyn
Stoddart, David Ayars,	Wilkes-Barre, Pa.
Stone, Lucy Amelia,	Binghamton
Stone, Sara,	Chester, N. J.
Stuckey, Grace,	Cincinnati, Ohio
Stull, Spencer Clarence,	Clarksville, Md.
Swigert, Sara Geraldine, M.E. (Millersville Nor.), 1901,	Carbondale, Pa.
Sykes, George Dwight,	Stony Point
Taliaferro, Carrie Brown, L. I. (Farmville, Va. Nor.), 1899,	Orange, Va.
Tavarez, Gertrudis,	San Juan, P. R.
Taylor, Nelson Vinton,	Salisbury, No. Car.
Tenney, Albert Seward,	Tientsin, China
Tenney, Raymond Parker,	Tientsin, China

Thompson, Anna Ford,	<i>Summit, N. J.</i>
Thorne, Fred,	<i>New Paltz</i>
Tiedeman, Luther,	<i>Charleston, S. C.</i>
Timmerman, Charles Edward, B.S. (Coll. City of N. Y.), 1891, M.E. (Cornell Univ.), 1892, M.M.E. (same), 1893, <i>East Orange, N. J.</i>	
Tobin, James Leo,	<i>Brooklyn</i>
Todd, Thomas Waring,	<i>Baltimore, Md.</i>
Toro, Francisco,	<i>San German, P. R.</i>
Torregrossa, Angel,	<i>Aguadilla, P. R.</i>
Torregrossa, Carlos,	<i>Aguadilla, P. R.</i>
Torres, Armando Merginades,	<i>Coamo, P. R.</i>
Torres Reyes, Felicita,	<i>San Sebastian, P. R.</i>
Torres, Juan Reyes,	<i>Mayaguez, P. R.</i>
Torres, Mercedes,	<i>Juana Diaz, P. R.</i>
Torrey, Gertrude Adelia,	<i>Buffalo</i>
Tourison, George Bartle,	<i>Philadelphia, Pa.</i>
Townes, Claudia Kelsall, A.B. (Greenville Female Coll.), 1879,	<i>Greenville, S. C.</i>
Tristany, Manuel,	<i>Juana Diaz, P. R.</i>
Turner, Mary Emma,	<i>Jamaica</i>
Turner, Ralph Coit,	<i>Marietta, Ohio</i>
Turner, William Joel, B.A. (Wash. & Lee Univ.), 1903,	<i>Lexington, Va.</i>
Twiss, Edith Minot, B.A. (Ohio State Univ.), 1895,	<i>Columbus, Ohio</i>
Updyke, Austin Hiel,	<i>Van Etten</i>
Vail, Amelia,	<i>Cohoes</i>
Vail, Susan Louise,	<i>Cohoes</i>
Valiente Varela, Rafael,	<i>Corozal, P. R.</i>
Valladares, Antenor,	<i>Lima, Peru</i>
Valle, Juan.	<i>Guayama, P. R.</i>
Van Fleet, Herman H.,	<i>Denver, Colo.</i>
Van Hoesen, Ella Markham,	<i>Cortland</i>
Vannan, Paul Antrim,	<i>Coatesville, Pa.</i>
Van Vorst, Julian Purse,	<i>Clarkston, Ga.</i>
Van Wagner, Elbert Brunson,	<i>Syracuse</i>
Van Zandt, Fanny Brice,	<i>Haleyville, N. J.</i>
Varona, Ramon Suarez,	<i>Utuado, P. R.</i>
Vazquez, Maria,	<i>Guayama, P. R.</i>
Velez, Diego,	<i>Yauco, P. R.</i>
Velez Gotay, Ramona,	<i>Yauco, P. R.</i>
Velez Gotay, Silvio,	<i>Yauco, P. R.</i>
Velez, Vidal,	<i>Lares, P. R.</i>

Villodas y Lugo Vina, Aurora,	Guayama, P. R.
Vissepo, Ernesto,	Carolina, P. R.
Vissepo, Mario,	Carolina, P. R.
Van Bretton, Agueda,	Arecibo, P. R.
Vortriede, Henry Julius,	Toledo, O.
Vreeland, Maggie,	Ridgewood, N. J.
Waite, Louise Garbutt,	Hartford, Conn.
Waldo, Jennie Edith,	Rockford, Ill.
Walker, Fernando Murray, A.B. (Nat. Coll. of Cordoba), 1900,	Cordoba, Agr. Rep.
Wallin, Caroline Elizabeth, A.B. (Wellesley), 1898,	Gilbertsville
Wallin, Daisy Florence, A.B., 1903,	Gilbertsville
Walter, Ella Catherine,	Johnstown, Pa.
Ward, Marguerite Hargrave,	Coney Island
Warner, Emma Louise,	Brooklyn
Warner, Lillian Elizabeth,	Brooklyn
Warren, Chester Ingersoll,	Troy
Washburn, Mabel Carter,	Hartford, Conn.
Waterman, Grace Salisbury, B.S., 1899,	Worcester
Watson, William Harry,	Pittsburg, Pa.
Watt, Grace Gates,	Kittanning, Pa.
Watt, Harold Woodruff,	Wilkes-Barre, Pa.
Watt, Homer Andrew,	Wilkes-Barre, Pa.
Way, Cassius, B.Agr. (Conn. Agr. Coll.), 1899,	Ithaca
Weber, Florenz Pauline,	Jamestown
Weed, Margaretta Eliza,	East Orange, N. J.
Weed, Ruth Sarissa,	North Rose
Weems, Clarence Norwood, A.B. (Univ. of Ark.), 1899,	Searcy, Ark.
Weems, Nancy Askew, A.B. (Univ. of Ark.), 1901,	Searcy, Ark.
Weiner, Edwin Morris Richard,	Kingston
Welsh, Everett Cartwright,	Philadelphia, Pa.
Wesson, Douglas Bertram,	Springfield, Mass.
Weston, Mary Josephine, B.A. (Wellesley), 1899,	Antwerp
Wheat, Grace Alice,	Brooklyn
Wheatley, Marie,	Medina, O.
Wheeler, Merton Rone,	Salt Lake City, Utah
Whitcomb, Don Salmon,	Brooklyn
White, Walter Charles Lewis,	Durham, N. C.
Whiting, George Scott,	Brooklyn
Whitney, Will,	New Brunswick, Can.
Whitson, Hannah,	Swarthmore, Pa.
Wigton, Charles Benson,	Philadelphia, Pa.

Wilcox, Glenn Avery, B.S., 1893,	<i>Clayville</i>
Wildman, Catharine, B.E. (West Chester St. Nor.), 1894,	<i>Philadelphia, Pa.</i>
Wiley, Clarence Fairfax,	<i>Chicago, Ill.</i>
Williams, Benjamin Oliver,	<i>Denver, Colo.</i>
Williams, Donald Davol,	<i>Brooklyn</i>
Williams, Edwin Clifford,	<i>Washington, D. C.</i>
Wilson, Griswold,	<i>Philadelphia, Pa.</i>
Wing, Lois Watson,	<i>Ithaca</i>
Wood, Charles Montgomery, A.B. (Princeton), 1903,	<i>Chambersburg, Pa.</i>
Woolley, Gertrude Holland,	<i>Brooklyn</i>
Worrall, Clayton Smith,	<i>Media, Pa.</i>
Wragge, Mary Adelaide,	<i>Blackheath, London, Eng.</i>
Wright, Grace Latimer,	<i>Brooklyn</i>
Yard, Willis Stuart,	<i>Denver, Colo.</i>
Yates, William Henry,	<i>Negaunee, Mich.</i>
Young, Margaret Elizabeth, A.B., 1904,	<i>East Palmyra</i>
Zayas, Maria Luisa,	<i>Tibonito, P. R.</i>
Zeno, Gustavo,	<i>San Juan, P. R.</i>

STUDENTS IN SUMMER TERM IN ENTOMOLOGY.

Aronovici, Charles, B.L. (Gym. of Roumania), 1898, <i>Philadelphia, Pa.</i>
Austin, Blanche Tudor, B.S. (Wells), 1895, <i>Cincinnati, O.</i>
Barlow, John, B.S. (Middlebury), 1895, A.M. (Brown), 1896, <i>Kingston, R. I.</i>
Betten, Cornelius, B.A: (Lake Forest Coll.), 1900, M.A. (same), 1901, <i>Orange City, Iowa</i>
Bradley, James Chester, A.B. (Phila. Central High School), 1903, <i>New York City</i>
Bradner, Harriet Batchelor, <i>Warwick</i>
Button, Harry Freeman, <i>Forest Home</i>
Chamberlain, Ralph Vary, B.S. (Univ. of Utah), 1898, <i>Salt Lake City, Utah</i>
Clark, Kathleen Bell, <i>Davenport, Iowa</i>
Cook, Florence Margaret, <i>Ithaca</i>
Crosby, Cyrus Richard, <i>Penn Yan</i>
Curtis, Ralph Wright, B.S.A., 1901, <i>Ithaca</i>

Denison, Henry Strong,	Denver, Colo.
Dyer, Bessie Marin,	Ithaca
Elliott, Marion Winifred,	Ithaca
Fletcher, Philena Belle, B.S. in Agr., 1904,	Bainbridge
Johnson, Fred,	Westfield
Lyndon, Sophie Harriet,	Fairport
McKay, Florence Lucinda,	Ithaca
Moore, Emmeline,	Batavia
Palmer, Charles Warner,	Media, Pa.
Smith, Arthur, B.A. (Univ. of Toronto), 1900, <i>Iroquois, Ont., Canada</i>	
Spooner, Charles Stockman,	Middletown
Weld, Lewis Hart, A.B. (Univ. of Rochester), 1900, A.M. (Univ. of Mich.), 1902,	Medina
Whitson, Mary,	Ithaca
Woglum, Russell Sage, A.B., 1904,	Oneida

STUDENTS IN SHORT WINTER COURSE IN AGRICULTURE.

WINTER 1904.

Apgar, Leon Spencer,	Freeville
Ayers, Winfred Enos,	Berne
Ayres, Harvey Lyon,	Hunter's Land
Bacon, Mark Balderston,	Haddonfield, N. J.
Baker, Wilfred Seymour,	Andover
Balmforth, Arthur Hepworth,	Holley
Barden, Raymond Ezra,	Candor
Becker, Albert Morrell,	North Cohocton
Becker, Stephen Morell,	North Cohocton
Bell, Ralph,	Ceres
Benbow, James Richard,	Clayville
Bliss, Joseph Hicks,	Brainard
Bowman, Guy Willis,	Rome
Boyce, Elmer Raymond,	New Berlin
Bradt, Frederick,	Union Church
Campbell, John William,	Decatur
Clark, George Scott,	Delhi
Clegg, David Cadwallader,	Philadelphia, Pa.
Clough, Alfred Walker,	Greenland, N. H.
Cole, DeWitt Haskin,	Geneseo

Culver, Lester A.	<i>West Laurens</i>
Darrow, Wilson Henry,	<i>Waddington</i>
Davis, Erwin George,	<i>Adams Centre</i>
Devereaux, Linneaus Lafayette,	<i>Clyde</i>
Dowd, Mervyn Charles,	<i>Louisville</i>
Dubuque, Joseph Philip,	<i>Chateaugay</i>
Dugan, Samuel A.,	<i>South Worcester</i>
Eaton, Grover Cleveland.	<i>Willet</i>
Edgerton, Harry George,	<i>Morris</i>
Egan, Pierce Douglas,	<i>Lewis</i>
Farley, Justus Charlot,	<i>Candor</i>
Ferris, Fred Wallace,	<i>Pavilion</i>
Ford, Robert Merton,	<i>East Freetown</i>
Fowler, Frank Marion,	<i>Youngsville</i>
Fox, Otis Henry,	<i>West Pierrepont</i>
Gardner, Fred Foster,	<i>Haverhill, Mass.</i>
Gould, Ransford Ray,	<i>Jamestown</i>
Guardenier, Edgar Van Home,	<i>East Springfield</i>
Halloway, Curtis Edward,	<i>Meredith</i>
Harkness, Charles Merrill,	<i>Harkness</i>
Haver, Will George,	<i>Cold Brook</i>
Henry, Edward Wilbur,	<i>Canandaigua</i>
Hevener, Fred,	<i>Glosser, Pa.</i>
Hess, Patrick Burns,	<i>Roxbury</i>
Higgins, George Elmer,	<i>Glenmore</i>
Hill, Oliver William,	<i>Webster</i>
Hinkley, Oliver Earl,	<i>Waterville</i>
Hoagland, William Cady,	<i>Marion</i>
Hotchkiss, Ernest William,	<i>Walton</i>
Holmes, Merle Howard,	<i>Wilson</i>
Howland, Ford Lavern,	<i>Schenevus</i>
Jarvis, Henry Kent,	<i>Flycreek</i>
Jennings, Henry,	<i>Southold</i>
Kelly, John O.,	<i>Griffin Corners</i>
Kenyon, Amos Langworthy, B.S., (Rhode Is. State Coll.), 1900,	<i>Kingston, R. I.</i>
Killough, Benjamin Franklyn,	<i>Cincinnatus</i>
Kiniry, Frank,	<i>Fort Plain</i>
Klein, John Jacob,	<i>Freenville</i>
Lacy, Howard DeGrass,	<i>Richville</i>
Lee, Leo Arza,	<i>East Avon</i>
LeRoy, Fred Clinton,	<i>Truxton</i>

Lewis, Howard Augustus,	New York City
Lewis, Marshall John,	Alfred Station
Loveland, Truman Marvin,	Richmondville
McMillan, William Hill,	Hermon
Maharay, Arthur Orr,	Newburg
Manchester, George,	Oneonta
Markham, Winfield Lyman,	Kennedy
Marshall, Fred Conrad,	Ithaca
Mason, William Riley,	Churchville
Meeker, Robert Levern,	McDonough
Miller, Elmer Peter,	Starkville
Miner, Paris Clark,	Smyrna
Morius, Hallam Leonard, A.B. (Harvard), 1902,	New York City
Murray, Martin Joseph,	Geneva
Myers, Harry William,	South Livonia
Newton, Maurice A.,	Lysander
Nydam, William Arthur,	Newburg
O'Neil, William James,	Jordan
Opperman, Louis Charles,	Burlingham
Osborne, Carl Colfar,	Indianapolis, Ind.
Osterhout, Clarence Cornelious,	Canajoharie
Ostertag, Rosa Henrietta,	Chicago, Ill.
Page, Harvey Richard,	South Edmeston
Palmer, Horace David,	Westfield
Parsons, Del Moute,	Chenango Forks
Pease, John A.,	Oswego
Perce, Lawrence Ard,	Lisle
Peryer, Murray Lee,	Ellenburg Center
Phillips, Angus Sandford,	Oriskany Falls
Pollock, John Eslie, I.	Gouverneur
Potter, Edson Ellsworth,	Ellenburg
Reeves, James Hewe,	Newark
Reynolds, John Harmon,	Ellenburg Depot
Richardson, Harry Elmer,	East Aurora
Rick, John,	Reading, Pa.
Roberts, Harry Newton,	Mayville
Roe, Charles Henry,	Ithaca
Roseboom, Peter Dana,	Westford
Rosecrans, Helen Marie Stevens,	Moravia
Rowe, Delmar S.,	East Homer
Rurey, John Terry,	Cohocton
Rusho, Manly,	Clayton

Sawyer, Francis Burr,	Smithville
Seaton, Leonard Barber,	Munnsville
Seeley, Harvey Lee,	Lakeville
Senn, Alvin David,	New London
Senn, Harold Jay,	New London
Shalor, Homer Hamilton,	Richmondville
Shearer, Fred Vernon,	Cortland
Sinclair, Arba Ross,	Caledonia
Snyder, Arthur John,	East Springfield
Snyder, Charles Hawes,	Downsville
Stillman, Edward,	Cortland
Sweet, Lisle,	Borodina
Thornton, Cleon Danforth,	Depeyster
Thurgood, Albert Edward,	Bombay
Tompkins, Raymond,	Ashland
Utridge, Peter Sutton,	Orwell, Vt.
Van Doren, Rolla,	Three Mile Bay
Van Nortwick, Harry Raymond,	Corning
Van Swall, George Henry,	Oriskany Falls
Wadsworth, Frank Lanning,	Rochester
Ware, Maskell,	Meridale
Washburne, Ray Douglas,	Etna
Waterman, Loring Delos,	Waterville
Way, Harvey Richmond,	Churchville
Way, Horace Lewis,	Fairville, Pa.
Whyte, Merton George,	Moravia
Wiese, Henry Albert,	Wawarsing
Winne, Harry Ernest,	Greenville
Winslow, Richard,	Ticonderoga
Wood, Page,	Broome Center
Worlois, Milton,	Hilton

**STUDENTS IN SHORT COURSE IN VETERINARY
SCIENCE FOR PRACTITIONERS.**

WINTER, 1904.

Barradell, Alfred, V.S. (Ont. Vet. Coll.), 1894,	Pawling
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COLLEGE OF LAW :—

Senior Class	57
Junior Class	79
First Year Class	84
Special Students	4
Total	224

THE MEDICAL COLLEGE :—

Senior Class, New York City	76
Junior Class, New York City	68
Sophomore Class, New York City	54
Freshman Class, New York City	93
Specials, New York City	12
Sophomore Class, Ithaca	48
Freshman Class, Ithaca	41
Total	392

COLLEGE OF AGRICULTURE :—

Senior Class	12
Junior Class	17
Sophomore Class	17
Freshman Class	50
Special Students	88
Total	184

STATE COLLEGE OF VETERINARY MEDICINE :—

Third Year Class	23
Second Year Class	27
First Year Class	53
Total	103

COLLEGE OF ARCHITECTURE :—

Senior Class	9
Junior Class	10
Sophomore Class	15
Freshman Class	21
Special Students	5
Second Year Painting	2
Special Painting	3
Total	65

COLLEGE OF CIVIL ENGINEERING :—

Senior Class	55
Junior Class	57
Sophomore Class	98
Freshman Class	165
Special Students	1
Total	376

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